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ABSTRACT

A report on research policy in 16 European countries commends itself to the attention of those research directors and civil servants who are concerned with planning, coordinating, and utilizing educational research to improve the educational system. An analysis of the 16 reports touches briefly on contemporary educational problems, sources for the analysis, differentiating between pure and applied research, the institutional framework for educational research in Europe, educational policy and research in centralized, decentralized, and federal states, and comments on various research institutes, finance, communication of information, and researchers tentative conclusions. A copy of the questionnaire on which the country reports are based precedes the reports from Austria, Belgium, Cyprus, Denmark, Finland, France, the Federal Republic of Germany, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, and the United Kingdom. A final discussion of general issues of European cooperation in educational research and development includes background information, general tasks and functions of school, development trends, and planning for educational development. (Author/KSM)

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INTRODUCTION

It is well to recall that the Fourth Conference of European Ministers of Education in 1964 requested of the Council of Europe : "that it set up a service which would be responsible for collating and distributing information on educational research carried out in the various countries signatory or adhering to the European Cultural Convention."

Although starting virtually from scratch, by 1971 the Council of Europe, besides its investigations into all the various aspects of research co-operation, had published the 1967-68 and the 1969-70 European Surveys of Educational Research (Documentation Centre for Education in Europe, four and five volumes respectively; out of print), each of which contained information on educational research policies, research organisations, and completed and on-going research projects in the member States of the Council for Cultural Co-operation.

But owing to the considerable expansion of educational research in many countries, the surveys had become extremely voluminous, while the difficulties in collecting the necessary information imposed severe delays on publication. For these reasons a special working party on research information suggested in 1971 that the two main elements in the surveys, research projects and research policies, should each become the subject of a separate publication. At the same time it suggested that the experience gained by member countries in the field of research information could enable them to produce independently their own national surveys of research projects. These, compiled on the basis of an identical questionnaire and published in a common format in both the national and one of the official languages of the Council of Europe, would constitute a more complete European survey, as well as providing better and more accessible information for interested parties in the individual States.

In 1972 this policy was accepted and put into effect by the Committee for Educational Research. By the end of 1973 thirteen national surveys had been published and distributed to all the education ministries, the contributing organisations, research libraries etc., on the basis of a common mailing list. Further refinements in this co-operative information venture are planned, entailing closer co-ordination in content, greater frequency, a common indexing system, and finally it is hoped incorporation into a computer-based information network which will be based on the thesaurus, format and standards developed for the European Documentation and Information System for Education (EUDISED Project).

The sixteen country reports on research policy contained in this volume constitute an essential complement to the detailed information set out in the above-mentioned national surveys of research projects. The country reports too were compiled on the basis of a commonly agreed questionnaire, and were supplied by the national ministries of education or by their nominated agents. While the national surveys of research projects are of interest and use principally to the researchers working in universities and specialised organisations, this volume will commend itself to the attention of those research directors and civil servants who are concerned with planning, co-ordinating and utilising educational research so as to throw its full weight into the improvement of the education system. The comments of the past and present Chairmen of the Committee for Educational Research form a prologue and an epilogue; the one analysing the information revealed by this survey, the other picking out in summary fashion the chief questions which research policy in Europe must try to answer in the next ten years.

Both the project surveys and the policy surveys will continue to appear at regular intervals in the years to come.

Strasbourg, February 1974

Niels BORCH-JACOBSEN
Director of Education and of Cultural and
Scientific Affairs

EUROPEAN RESEARCH POLICIES

Analysis of the 15 country reports

by

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I. CONTEMPORARY EDUCATIONAL PROBLEMS IN EUROPE

In Europe the last two decades have been characterised by a general transformation of educational systems. Changes have varied in extent from one country to another, and they date from different periods. But all the member states of the Council for Cultural Co-operation are currently engaged in reforms, whose general features are broadly similar despite differences in institutions and policies.

The school-leaving age is being raised to 16 years or over everywhere and an increasing number of pupils are continuing their schooling up to the age of 18 years and beyond. The reason for this is obviously to be found in European technological and urban development, the rate of which largely determines the extent of the changes made in the various educational systems.

Extension of the period of compulsory schooling is generally accompanied by some degree of structural reorganisation aimed at unifying school education by substituting the comprehensive type of school for the former system of separate schools. A largely selective and segregative system is tending to be replaced by an egalitarian and democratized system. Admittedly, this development is more marked in some countries than in others. Whereas Sweden introduced a fully comprehensive system in 1962 after a 12-year trial period, many European countries continue to have separate schools catering for selected pupils, while conducting more or less numerous experiments in comprehensive education. The comprehensive system is still very often challenged, but there is now no European country which is not trying it out to some extent at least; whether by decision of local authorities or by a general policy decision, whether they introduce it only at primary level or whether they are, as in France, half-way to a universal comprehensive system at lower secondary level (11 to 16 years).

At the same time there has been an increase throughout Europe in the number of nursery schools, designed as day-care institutions in urban areas where the employment of women is tending to eliminate the hitherto preponderant role of the family in education. Nursery schooling is also encouraged as a way of providing equal opportunities for all by neutralising - so it is hoped - socio-cultural disparities. But here again, despite this general trend, there are considerable differences between those countries where, as in France, almost all children of four and five years of age attend nursery school, and other countries which are only now realising the need for such schooling.

Finally, the whole of Europe is confronted by the acute problems associated with schooling for the 16-19 age-group and with those of permanent education. The need to adapt the training of pupils in this age-group to rapidly changing employment structures, and the equally urgent need to adapt both subject-matter and teaching methods to the new psychology of adolescents and young adults and to the new roles they are called upon to play in an urban industrial society led the European Ministers of Education to give their attention to these crucial problems in 1973 (1).

To this general survey could be added such problems as those of relating to the schooling of migrant workers' children, to so-called maladjusted children and so on. However, it is not my purpose to describe in detail the various problems at present facing the leaders of all European countries, but to emphasize that current educational research is being conducted in the midst of dramatic events such as our predecessors never experienced in their society founded on stable socio-economic structures.

Up to the last war, educational research might have been viewed as a pleasant occupation for a number of eccentrics, most of them seeking to attain largely Utopian and esoteric aims. Owing to the urgent social and political problems of our time, however, it has come to be looked upon as a possible source of enlightenment in a world evolving towards an uncertain future in the midst of pressing and formidable problems whose solution brooks no delay, and at a time when our leaders are very often compelled to make decisions without full knowledge of the facts and with only a vague idea of the possible consequences of their decisions.

In addition, changes in the subject-matter taught (mathematics, natural sciences and linguistics) and clearer insight into learning processes and mental development cannot but have repercussions in the classroom, whether by making it necessary to draw up new syllabuses or by increasing our knowledge about optimum teaching conditions. That is why mathematics and science syllabuses in particular have undergone changes in all European countries, and similar trends towards a change in the teaching of the mother-tongue and foreign languages are also apparent.

II. SOURCES FOR THIS PAPER

To what extent have these changes in structure and subject-matter been - or are still - conditioned by educational research in Europe? How are they generally studied and how does research influence the decision-making processes? These are the questions we shall try to answer. This survey - for which I crave indulgence in advance in view of the impossibility of being completely objective - is based on the following documents:

- Firstly, the European survey of educational research policies in member states, requested by the Council of Europe's Committee for Educational Research, to which the authorities of fifteen states offered substantial replies.

- Secondly, the European surveys of educational research in 1968 and 1970 and the subsequent national surveys in 1971 and 1972 (2, 3).

- Thirdly, the reports of visits made by experts in the course of the Committee's work.

- Finally, the "case studies" made by various specialists in preparation for the Second Colloquium of Directors of Educational Research Organisations in Paris in November 1973.

These various sources being interrelated and complementary, they would appear to provide an adequate basis for the present report.

III. PURE RESEARCH AND APPLIED RESEARCH

It seems to me necessary, before going into detail to define what is meant by "educational research" and to consider the relations that exist between research on the one hand and, on the other, the policy-makers and administrators in education and the teachers ultimately responsible for putting reforms into effect.

In education the term "research" has various meanings. A distinction is normally drawn between research aiming to reach conclusions and research aiming to reach decisions (4). In the former case, that of pure research, the researcher's work is motivated simply by the desire for knowledge - and is a strictly scientific activity whose aim is to establish the laws governing the educational phenomenon he is studying; descriptive sociological studies, aetiological studies of a sociological or economic nature, historical studies, etc. All educational studies classed as "systems studies" belong to this category. Changes in educational institutions resulting from socio-economic changes; changes in attitudes or in intakes, resulting from changes in institutions; adjustment of pupil intake to economic and technological demand, etc.... all such studies, essential for a coherent educational policy, are of this type. They may be commissioned to meet the immediate needs of decision-makers, but they are almost invariably conducted on the fringe of educational policy. For various reasons - the purely theoretical motivations of researchers, the uncertain duration of the studies, the scientific

maturation necessary, the gradual creation of instruments for theoretical analysis completely independent of practical political considerations - the researcher in this scientific sector, as in any other, needs to be completely free and wholly independent of the authorities. With such prerequisites, it will be immediately obvious how difficult it is to obtain the necessary funds for such research, which can only come from public or private patrons.

We shall include psychological and sociological research on mental development and learning in the same category. Here, too, researchers must be completely free from any sense of urgency and from the practical preoccupations of decision-makers and teachers. Theirs is a laboratory activity. When the field of study is the classroom, pupils and teachers are observed objectively and without reference to their own immediate technical concerns. Such research naturally raises funding problems since it never appears to be immediately useful or profitable.

Research with a view to decisions, or applied research, falls into an entirely different category. It is designed to achieve specific effects - lowering of costs, better adaptation of curricula to the requirements of the different branches of study, improvement in teaching methods, inculcation of new attitudes considered desirable, and so forth. Such research necessarily involves teachers and is designed to answer their problems or to associate them in efforts to solve these. Action-research comes under this heading: the teacher at grips with the difficulties is closely associated in their solution with the researcher who is able to apply his theoretical knowledge to them with a certain objectivity and detachment. It may also be called "supervised innovation" when it is initiated by the teachers themselves in an attempt, with the help of the researcher, to solve a problem which they have encountered in their own work and are endeavouring to overcome by trying out new techniques.

Such research is always connected with innovation, whereas, in the case of the first category, innovation may be one application of the research but is fundamentally independent of it. In applied research, there are two possibilities, depending on the origin of, and responsibility for, the project. Such research may begin as laboratory research involving only a small number of pupils and teachers, and subsequently be transposed to a larger scale by transmission of the instruments or methods devised to other teachers; researchers will try to determine the best conditions for transmission and assess the results obtained from their experiments on this new scale.

An alternative method is to associate a large number of teachers with the innovation from the very beginning and enlist their collaboration in a joint project. The development and creative phases are thus closely interrelated.

Whatever the method used, such research always requires multidisciplinary teams and necessitates informing and training teachers; thus it invariably foreshadows the problems and needs that wider application will bring forth.

In what sort of context are the two types of research which we have just described conducted and what kind of researchers are capable of carrying it out? Obviously pure research must be done by specialists: sociologists, psychologists, economists and historians. Such studies will be carried out in universities or specialised university institutes. By contrast, applied research, since it necessarily involves teachers and pupils, is generally conducted in training centres (where it is a subsidiary activity), associated either with permanently experimental classes, or with classes specially selected for the experiment in normal schools. Alternatively the academic component of the research may be based in an institute specialising in applied research, or benefit from the part-time assistance of an individual academic.

What may be the links between research of these two kinds and the decisions of local or national authorities?

As already stated, pure research is highly important for decisions affecting schools. Unfortunately, it cannot generally be commissioned with a view to immediate application. Moreover, the findings often appear abstruse and unusable as they stand ; they need to be translated into a language that can be understood by administrators and policy-makers. That is why such research, despite its outstanding usefulness, is often unknown to decision-makers or ignored by them.

Applied research, and supervised innovation in particular, is better known to decision-makers because it is more directly usable. But they often expect it to produce immediate results and fail to take due account of the need to train and inform teachers,which is always a lengthy and costly process.

Teachers on the other hand, often consider research,when they do not initiate it themselves, an interference or even a waste of time, especially if it demands readaptation and extra effort on their part, which naturally no one welcomes.

These analyses being necessarily of a very summary nature,the reader is referred to the specialised works mentioned in the bibliography for fuller details. The theoretical distinctions are essential, however, to a proper understanding of the problems of educational research in the framing of European educational policies.

IV. INSTITUTIONAL FRAMEWORK FOR EDUCATIONAL RESEARCH IN EUROPE

It would be trite to point out the diversity of administrative systems and policies in education in the various European countries. One would expect to find similar diversity in the sphere of research. But we shall see that in fact this is not so and that the same problems arise in contexts which are apparently very different. Probably there is a set of underlying factors that are independent of the administrative systems, the latter being known to be conditioned by accident and history.

From an administrative and legislative point of view, the various European educational systems may be classed in three basic categories, depending on whether they are centralised or otherwise.

Most European states have a centralised system. The Minister, who expresses the political will, gives effect through his ministry to the state's educational policy, as determined by the national parliament. Educational policy can only be broadly outlined, so that the administrative authorities are left a considerable margin for manoeuvre as regards both planning and execution. Structures and programmes are worked out in detail by these administrative authorities and submitted to the political authorities for approval - at least where the general institutional framework is concerned ; aim of studies, structures of the educational system and of its elements, financing arrangements. Content is usually decided by experts. The decisions taken constitute a set of regulations (curricula, syllabuses, teaching instructions) applicable to the whole educational system and implemented through the training institutes and inspectorates. In the hierarchy, the inspectorate plays a major part as an institution for guidance and information. This system of administration is practised by many European states including France, Italy, Sweden, Finland, Spain, Turkey and Cyprus.

In contrast to the centralised system there is a more or less decentralised system, of which the United Kingdom affords a typical example. Jack Wrigley of the London Schools Council, writes: "Traditionally the Secretary of State for Education is excluded from direct influence in the school curriculum. In practice, control of what is taught and the way in which it is taught is almost entirely the responsibility of individual head teachers" (6). In such a system there can be no question of defining a detailed educational policy at national level and even less of making its implementation compulsory. All that the central authority and policy-making

bodies can do is define the main lines and general framework of educational policy, indicating, for instance, the direction reforms might take. The central authority has funds of its own for financing the studies and research it commissions, but it "delegates substantial responsibility to research councils and other bodies with specialist functions" (9). Such a system is fairly exceptional in Europe and is particularly characteristic of the Anglo-Saxon world. Nevertheless similar liberal trends are to be seen in countries like Denmark and the Netherlands.

Between these two types, there is a third, apparently intermediate, type in which the federal nature of the state places the central authority in the same situation in relation to the regional authorities as the British Government occupies vis-à-vis the local education authorities. But despite this liberalism, or division of power, the educational policies applied in the individual federated states are often very centralised. This is the case, for instance, in the Federal Republic of Germany, Switzerland and Belgium. In these countries each state in the federation defines and pursues its educational policy in an independent and very centralised way, whilst federal policy is defined only in broad terms and is not binding on the member states. The federal authorities nevertheless have resources of their own for studies and research, thus creating conditions favouring liberalism and also a fair degree of autonomy at this level.

These very different types of structure must inevitably condition the nature of the influence exercised by research and its institutional framework.

It should nevertheless be added that the major structural changes in France - in raising of the school-foster abundant and effective educational research. Both Italy and Sweden are among the countries with a markedly hierarchical educational system. Whilst, in the opinion of many observers, Sweden provides a remarkable example of co-ordination between research, innovation and policy decisions, Italy, according to the report sent in by its authorities, appears to be far less favourably placed : "So far co-operation between specialists and official bodies has produced good results as regards analyses of situations and the drafting of documents. On the other hand, their influence on the basic decisions, that is to say on policy choices and parliamentary bills, has been fairly limited.". Hitherto, the situation in France has been similar, at least as far as the influence of pure research is concerned. Conversely, the United Kingdom, which is a prime example of decentralisation, is the scene of intense research activity, from which a number of European countries might well take a lead; this research has had, and continues to have, an undoubted influence on the development of the educational system.

We must therefore analyse the varied conditions of European educational systems in greater detail in order to identify the common features which are discernible.

V. EDUCATIONAL POLICY AND RESEARCH IN CENTRALISED STATES

In centralised systems decisions on reforms are generally made after parliamentary debates, preceded and followed by technical studies commissioned by the government from permanent or temporary advisory bodies : these are the major advisory commissions, investigating the overall scene or particular issues. This system is practised in such countries as Sweden, Italy, France and Turkey. These commissions have no power of decision; their function is to carry out studies and make proposals to governments. Their membership is decisive in determining how much weight is given to educational research in the policies of these states. Traditionally, and until quite recently, in most centralised European countries, research had a very limited place in these committees. They are generally composed of eminent persons from university circles (professors and administrators), who bring to the debates and conclusions the fruits of their experience and personal knowledge of the problems considered. Thus the influence exerted by educational research in these committees depends on how well informed the members are of its conclusions on the subject and, unfortunately, their information is often extremely slight. The reason for this is to be found in the opinion of educational research currently held in teaching circles.

The Italian report is particularly revealing on this point: "For a long time - let us say, up to the beginning of the fifties - no one would consider pedagogics as a science, not even a science of education dealing with teaching techniques (and now with technology). It was felt that the teacher needed, above all, to know the subject he was teaching, and insufficient stress was placed on his need for technical preparation for his profession." Until recently the situation in France was fairly similar: "Previously the need for research was undoubtedly felt, but only marginally, as those responsible seemed to consider that research would not be of much use to them in matters requiring immediate action". A little further on, in the same report on educational research from the French delegation, we read: "The place occupied by educational research in decision-making over the last twenty years seems very small if judged solely by administrative criteria. For example, whereas the large-scale re-organisation of the education system between 1945 and 1970 - the main aspects of which were of course the 1959 reform of school education and 1968 Higher Education Act (Loi d'orientation) - led to the publication of a great many regulations, research problems have been made the subject of only three or four fairly minor circulars".

It should nevertheless be added that the major structural changes - raising of the school-leaving age, introduction of middle schools, development of the teaching of technical subjects, organisation of higher education - were decided on by the authorities in response to economic planning needs and that the major education committees had less say in these matters than the planners. The latter obviously relied on basic economic studies, generally unknown to educationists or rejected by them in the name of the theoretical and axiological purity of teaching ("Teaching is not an industry").

The parallel situation in Sweden is extremely illuminating. The same system of having committees prepare decisions has been in operation since 1940, but these committees have always explicitly based their investigations on the findings of research carried out before or at the same time and, increasingly frequently, at their instigation. The parliamentary decision in 1962 instituting comprehensive schools was preceded by a twelve-year trial period, during which "educational research was built into the educational system as a whole. It (this research) includes discipline-oriented as well as policy-oriented research."(5). This twelve-year development period made it possible to study and evaluate the new system (6).

It is noteworthy that the Swedish method seems to be being adopted increasingly in the centralised European countries. This is the case in France, for instance, where the major national committees have recently taken to inquiring into current research at home and abroad, and to requesting (and obtaining) considerable appropriations for carrying out the surveys and research which they need to inform their conclusions. The recent establishment of central research institutes in most centralised European countries is evidence of this new awareness of the importance of educational research - I shall come back to this later. Similarly, the authorities appear increasingly anxious to assess the effects of their decisions and to use educational research to do so after innovations have been introduced.

One characteristic of centralised educational systems is the influence of public opinion on decision-making and advisory bodies. The latter may exert their influence, whether positive or negative, on all reforms under study or begun. Educational research may find in this a back door more effective than the institutional channels, at least when the public's interest has been aroused and they have been correctly informed about the results of research at home and abroad. Educational problems are in fact debated by trade-unions, professional societies, political parties and parents associations. But these debates may or may not draw on the results of educational research just as the decision-making bodies may or may not favour the accuracy of the discussions depending on whether or not they are systematic in the study and application of reforms.

There is an obvious danger of these debates remaining on a purely emotional plane and of research data being used only for polemical purposes if indeed the results are actually known, which is only rarely the case. But where the political authorities have taken care, as in Sweden, to associate the public closely with the successive phases in the preparation of reforms, misunderstandings and the risks of obstruction are minimized, as are the risks of unilateral decisions dictated by political fervour rather than the wise implementation of democratically defined aims based on research findings.

Although, in very hierarchical systems, the pressure exerted by public opinion, or by associations of teachers or parents is the major moving factor there is a grave risk in such conditions from unreasoning conservatism or its opposite, ill-founded reforming radicalism. Wherever decisions are made without the public being sufficiently informed and involved, there are serious dangers of breakdowns: society, teachers and parents may reject technocratic political decisions; or curricular changes obtained, for instance, through pressure from some professional association may be rejected by teachers who have not been consulted or by parents confronted with a fait accompli. There is no lack of examples in Europe of reforms pushed through in this way failing partially or completely, even when technically sound, because there has been insufficient preparation for the change.

In fact in centralised systems decision-making seems easy - whatever the importance accorded to research in the preliminary studies - but the major difficulty lies in giving effect to the decisions and translating laws and regulations into new institutions and attitudes. This is where decision-oriented research, supervised innovation and development come into play. In highly centralised countries it is customary, in general, to minimise the distance separating a legal decision and its execution. There is a tendency to think that texts alone can change an institution and that the influence of the inspectorate and the pressures it brings to bear should suffice to ensure general implementation. Thus reforms are introduced without prior trial, simply by changing the regulations governing organisation, curricula and syllabuses, or instructions. As the various reports confirm, this is illusory: such methods prove ineffective everywhere.

Hierarchical and centralised systems are characterised by extreme rigidity; spontaneous innovation by the school or the individual teacher is frowned on; it is invariably regarded as a deviation from the normal and generally considered suspect. Moreover a centralised and generalised examination system is largely responsible for maintaining conformism, which is transmitted through stereo-typed initial teacher-training and inspectoral fiats.

The states, increasingly aware of this major problem, have generally got round it by instituting experimental schools, where innovations approved in principle can be tried out and followed by specialised research institutes. As a rule, these schools, which are generally attached to centres for initial and in-service teacher-training, volunteer for this experimental work and additional resources are made available to them (funds, equipment, staff). They play a major part in reforms in Sweden and France, and a more modest one, it would appear, in Italy. But the step from isolation to general application continues to pose so far unsolved problems. This last remains dependent, in a centralised system, upon regulations and involves compulsion, whereas the experiment is voluntary. General implementation therefore implies a considerable sum of training and information work, which national budgets cannot always afford. Training courses are indeed organised and information is circulated or televised. But almost everywhere the impact is less than was hoped for and less than the minimum necessary for real effectiveness.

Once again, Sweden provides us with an outstanding example. Most centralised countries have apparently failed to grasp the essential interplay between conception and application in the process of innovation. The technological model is that which seems usually to apply: study by committees, proposals, decisions, small scale experiment, general implementation. While this may be a suitable enough process for the developing and selling of a car engine, it hardly seems appropriate for the dissemination of new educational methods demanding a change of attitude on the part of teachers. The answer would appear to lie in the greatest possible degree of participation by all parties in the decision-making and experimentation processes. If it is to be effective, educational research, whether pure or applied, should involve as many people as possible - specialists, teachers, parents, administrators, in the various stages of the reform process. In centralised systems, generalised action-research appears to be the only effective way of avoiding the obstructions inevitable in any progressive hierarchical system; it must afford scope for initiative and voluntary commitment within a general context defined by the democratic authority. Passive reception and mere obedience can never generalise an innovation, which is, by definition, creative.

VI. EDUCATIONAL POLICY AND RESEARCH IN DECENTRALISED STATES

Study of the decentralised systems and their problems as regards innovation ultimately leads to the same conclusions. The United Kingdom is obviously a very special case in Europe, from the point of view of educational policy. To a certain extent countries like Denmark and the Netherlands are similar, as are some of the states belonging to federations, which we shall deal with later. In the United Kingdom, in the words of their report, "control over school curricula, for instance, is assigned in law to local education authorities, and delegated by them in large measure to schools". The same is true of Denmark where, "the administration and organisation of the 'folkeskolen' is decentralised, which means that each municipality is comparatively free to plan in accordance with local wishes and possibilities. This applies mainly to the organisation of the local school structure but also to regulations governing instruction itself, including the weight and extent of a single subject". The same applies to the Netherlands.

In these circumstances, the function of the central government is simply to encourage and advise. It has to define general guidelines in educational policy and propose that the local authorities adhere to them. But they are not bound to do so and interpretations vary considerably.

In this kind of political system, pure and applied research assume some rather special characteristics.

Pure research, which demands considerable financial resources, cannot be developed at local level. It is commissioned nationally, either by the central government to help it formulate its policy guidelines, or by private foundations operating on a national scale. In all these cases the results of research are deprived of any hierarchic or institutional authority. The researchers' function is simply to provide information, since decisions are made at local or even school level and there is consequently no question of imposing or dictating. This non-involvement is conducive to freedom in research with regard to both the subjects investigated and to the way in which research is conducted, although it is only possible where the funding bodies - and the state in particular - consider educational research to be of value for its own sake and worth financing. Hence, the attitude is really more important than its administrative context.

As to applied research, obviously a highly decentralised system is logically propitious to innovation, the origin of all practical research. Any local initiative is permitted by the law. Consequently, relations between experimental schools and applied research institutes are necessarily based on free contract and lack any hierarchic character whether restrictive or incentive. In centralised systems the legal texts authorising the establishment of experimental sectors are ambiguous. The very fact of calling a school "experimental" places it in a

hierarchic situation in relation to the institute to which it is attached, but above all seems to set it apart from the system and consequently renders it suspect in the eyes of local authorities. This leads to friction since this freedom can never be absolute, particularly because of examinations and administrative funds. In a decentralised system, the school makes a free contract with the research institute. This is probably the explanation for the development of supervised innovation in the United Kingdom, where there has been a notable increase in research activity, hitherto financed chiefly by private foundations and teachers associations.

Nevertheless, it seems that this freedom of innovation rapidly reaches its limits and that the central authorities feel tempted to intervene on account of the relative rigidity of the English educational system. The recent institution of the Schools Council is the direct response to the concern felt by the national authorities. "The Schools Council for the Curriculum and Examinations grew out of a recognition by all branches of the education service that co-operative machinery was needed to organise a more rapid, and more effective, response to these changes (in knowledge and in society) (6). Freedom of decision at the lowest levels undoubtedly means freedom to change, but it also means freedom not to change. When social development renders educational development necessary, such freedom may become a hindrance, particularly when there is evidence that information from research institutes is not reaching teachers. However, there can be no recourse to compulsion under the English system and for that reason the Schools Council is confronted with the following problems:

- "how to provide an acceptable impetus for an increased rate of change in the curriculum;

- how to persuade teachers that curricular changes should be based on careful research and development;

- how to communicate new ideas, new content, new methods, new ways of organising schools, and especially, new aims to teachers." (6).

At about the time when the Schools Council was set up and at the instigation of the Nuffield Foundation and the Schools Council itself, Teachers Centres came into being. These are meeting places and permanent training centres with which the Council maintains contacts through its team of Field Officers. At present there are about five hundred of these centres in England and Wales.

The Schools Council is a basically democratic institution with a majority representation of teachers, which systematically decentralises the research it sponsors. Nevertheless, in the words of Jack Wrigley, the Schools Council "remains a central agency in a decentralised system" (6). It was the difficulties of development in a decentralised system which led to its establishment, and its problem, like that of the central development agencies in centralised countries, remains the dissemination of innovation and how to make this effective.

VII. EDUCATIONAL POLICY AND RESEARCH IN FEDERAL STATES

Federal European countries make up a third group, typified by the Federal Republic of Germany but also comprising Switzerland and Belgium. The situation in these countries is comparable at national level to that in the United Kingdom; while the individual federated states have either a centralised or a decentralised system. In other words, the federal government may issue only directives and recommendations - often the outcome of hard negotiation and compromise - but these are not binding on the federated states, which have exclusive jurisdiction as regards their own educational policy. This situation involves the same advantages and disadvantages for basic research as in the case of decentralised countries: freedom of research but a relative absence of responsibility.

Independent research institutes, like the Max-Planck Institute for Educational Research, may be set up and engage in high-level theoretical research with the help of untied grants from the federal government or the Länder. Highly qualified researchers sit on, or indeed chair the main federal committees. National private foundations set up independent educational research institutes(e.g., Volkswagenwerk). Unfortunately, the counterpart to the high level and disinterested nature of the research is fairly general ignorance, at executive level, of the nature and significance of the research, viewed with admiration by some but usually, by the rest, with a certain scorn.

The research commissioned at federal level is motivated largely by the need for co-ordination between the federated states, a need which grows with the increasing mobility of the population. Thus comparative educational studies are considered essential by leaders anxious to co-ordinate curricula, examinations and methods and also to adapt local education systems to the needs of a society in the throes of technological development. Switzerland has lately started setting up inter-cantonal institutes to perform these two functions.

The situation in the individual federated states is generally similar to that existing in centralised European states. The difference - a significant one - lies in the smaller size of these states, which naturally have far smaller populations than countries such as France, Italy, or Spain, and are thus closer to Sweden. In these demographic conditions, the administrator is much closer to the public, information is more easily communicated and reception is less likely to be inhibited by latent hostility towards a distant and impersonal central authority.

In addition, each state has set up research and development institutes of its own, so that there is an extraordinary number of these. In Federal Germany, every Land has a research institute similar to the one French national institute for educational research and documentation (the INRDP) although the latter's regional offices could play the same role as the institutes of the German Länder. But the independent local authorities of the Länder are prepared to finance regional institutes of this kind whereas the central French authorities see no need for them. The situation in Switzerland and Belgium is the same as in Germany.

Consequently, research-innovation in the federated states is expanding quite exceptionally although it is still too early to be able to assess the results. The situation in the individual Länder, as described by the German report, is the same as that observed by the Italian and French reports in their respective countries, namely : "(In the first place) co-operation between researchers and teachers, administrators and parents is institutionalised at the Land level in the form of the school advisory councils set up by the Ministries of Education and comprising representatives of all groups and associations concerned with school education. The task of these advisory councils is to assist the education authorities in the preparation of legislation, to discuss matters of fundamental importance, and to make proposals. Research still plays only a minor role in this process, however".

As in the centralised countries, the situation is developing rapidly and the concern to observe and assess innovations objectively is reflected in the increasingly numerous tasks assigned to local institutes. In the classroom, however, prejudice against research is still very strong. The problem is the same everywhere : the wide dissemination of results, for this entails not only informing teachers, but also, and above all, modifying their attitudes. Faith in educational research and its findings presupposes an awareness of the importance of empiricism in teaching, something still quite rare in Europe, where teachers continue to cling to a strictly academic conception of their role and still view teaching as an individual art serving to impart social values. We should ask ourselves in what respects such an attitude is valid and to what extent it is really incompatible with an empirical approach to teaching and to the distribution of responsibility in education. The harmonisation of these two approaches, if it could be achieved, might be the unique contribution of European educational research.

Let us complete the picture with data on research institutes, the financing of research, the communication of information and finally, the priority sectors of research.

VIII. THE VARIOUS RESEARCH INSTITUTES

There are several kinds of educational research institute in European countries.

The Schools Council for England and Wales is an original body which has an equivalent in Scotland and a more recent one in Denmark. It is a national body whose chief function is to co-ordinate and sponsor applied research immediately usable in the classroom. It is democratic in composition - decisions on the choice and financing of research projects are made independently by its committees, on which teachers' representatives sit side by side with administrators, the former having a majority of the seats. The research financed by the Council is entrusted to outside institutions or persons appointed as project directors. The financial means at its disposal are mainly government funds. It disseminates research findings to regional centres set up by teachers or local authorities. It has a number of field officers responsible for disseminating information, but they have no powers of decision or assessment.

Such bodies also exist in centralised countries, but they are more closely dependent on ministries and generally take the form of ad hoc committees or national centres. This is the case in Sweden, Finland, Spain and quite recently in France, where the activities of the CNRS (National Scientific Research Centre) have been extended to the field of education. The INRDP (French National Institute for Educational Research and Documentation) is also trying to channel part of its activity into sponsoring and co-ordinating research carried out in universities. But the thoroughly democratic nature of the Schools Council seems to be unmatched in any of the centralised countries.

Secondly, there is a number of large institutions engaged exclusively on pure research: the National Foundation for Educational Research in Great Britain, the Max-Planck Institute in Berlin, the Deutsches Institut für Internationale Pädagogische Forschung in Frankfurt, the Institut National pour l'Orientation Professionnelle in Paris, and the Laboratoire de Pédagogie Expérimentale de l'Université de Liège. These bodies are financed by state subsidies, by private funds, or by both.

Thirdly, there are, as a rule, national institutes for applied research in all states; these are responsible for recording spontaneous experiments, preparing new curricula, syllabuses and teaching materials, disseminating new methods and assessing results achieved. These centres are financed by the state or, more rarely, by private foundations, and have experimental schools. They are also responsible for disseminating information and sometimes, though less frequently, for training.

Fourthly, research is occasionally carried out by teacher-training centres, whether university centres or specialised training colleges. The research carried out in this way is always applied research.

Finally, in all European countries, universities carry out research, primarily for doctoral theses dealing mostly with educational doctrine and history; empirical research is generally done in psychology or sociology departments.

IX. FINANCE

What proportion of their budget do the various countries spend on educational research? The replies to this indiscreet question were unusable. Some said they were unable to give a precise figure for educational research as distinct from general administration or education as a whole; others gave figures which it is impossible to compare. We can safely assume from this lack of precision that in many countries educational research has not yet achieved a degree of autonomy justifying a separate budget entry; far from it. Only national bodies and the large institutes are able to state the cost of research and the amounts spent in the individual sectors. But these sums

represent only a part of the total actually spent on educational research, on diverse and often spontaneous projects. Proper planning and budgeting are the concomitants of a concerted educational research policy and the absence of a separate budget is a sure indication of the absence of a coherent policy. Very few states in Europe have an independent budget for educational research and for that reason it is regrettably impossible to give a general picture of the situation in this regard.

It should be noted that a substantial part of research in the United Kingdom, and a lesser part in the Federal Republic of Germany, is financed from private funds: foundations or sponsoring associations. This does not happen in centralised states.

X. COMMUNICATION OF INFORMATION

The importance of information for the exploitation of educational research has already been stressed. This information is transmitted both to administrators and policy-makers and to teachers. All the reports stress communication difficulties and the inadequacy of communication methods. The Swedish authorities themselves refer to shortcomings in the dissemination of information in their country and we saw that the English Schools Council was set up specifically to improve dissemination.

The traditional information channels are public or private publications. Institutes and universities publish their research findings in specialised journals with a very small circulation, which are read only by specialists and have no direct influence on the general public, not even on teachers, as enquiries carried out by the Schools Council (6), for instance, or the French INRDP (7) have shown.

The journals of unions or of professional associations do, however, mention research findings. Though not insignificant, these journals are not really very effective either, for they, too, have only a small readership. Publications issued by parents associations have also started to publish information about research. The leading newspapers mention research occasionally in connection with controversial or sensational topics. The French press, for instance, entered into the controversy concerning research on the teaching of French but, though this controversy helped to publicise the matter, it does not seem to have brought us any nearer to its solution.

Authors of reports were unanimous in stressing the slender impact of written information. The use of television to keep teachers informed is increasing but this too cannot be fully effective unless accompanied by individualised permanent training. All the European states are making an effort in this direction: one-day teach-ins and other courses of varying length are being instituted, but, everywhere, the action taken is still considered inadequate. Permanent training continues to be voluntary: this is the rule in decentralised countries and the small sums spent on it in centralised countries lead to the same result. But the conventional methods employed everywhere in these training schemes raise the question of their effectiveness. The voluntary system is necessary to avoid rejection of compulsory retraining, but the didactic nature of permanent education and its frequently "academic" character often discourage participants who expect instant solutions rather than general theoretical discussions, inappropriate to their knowledge and desires. Applied research is necessary in this field together with exact assessments by way of guidance for the authorities.

As to information on basic research, or at least that part of it which could be useful to policy-makers, we have already pointed out its inadequacy. Teachers consider the studies to be inaccessible and of little interest. Only economists seem to know of them, and the American studies on the adaptation of educational systems to industrial societies, sociological studies on obstacles to democratisation, psychological studies on the contemporary adolescent and on

teacher-pupil relationships have undoubtedly had some effect, albeit indirect, on the conclusions of the major committees and, above all, on the decisions made by administrators and policy-makers. Remember, however, that these decisions, usually made in a technocratic fashion, are unpopular with teachers and the public who, because they are completely unfamiliar with such studies and tend to adopt conservative and emotional attitudes, regard these decisions as unnecessary and obstructive.

Once again Sweden sets an example which should be copied by all European countries. The close assocation of teachers, researchers, parents, policy-makers and administrators with every stage of the reformatory process reduces risks of obstruction to the minimum. Supervised innovation and general participation seem to be the most effective methods for any progressive educational policy.

XI. TENTATIVE CONCLUSIONS

Is it possible to draw any conslusions from this attempted survey of national reports?

Despite the considerable diversity in existing conditions and rates of development, a number of common trends and characteristics are apparent in educational research in Europe.

First of all, we are witnessing an undoubted explosion of initiatives in this field. Whereas ten years ago only a few European countries such as Sweden and the United Kingdom attached any importance to educational research in their policy-making, today, all countries without exception have now set up central bodies to sponsor and co-ordinate research and disseminate information. The Council of Europe's notable efforts to improve the circulation of information among member countries are not unconnected with this gratifying development. The requirements to carry out the major surveys of 1968 and 1970, and the joint decision taken in 1972/73 to bring our information up to date every year or every two years through national surveys have obviously drawn the attention of ministry officials to the existence of educational research in their own countries and encouraged them to compare it with that of their neighbours. Some have even learned, in this way, of the flourishing educational research across the Atlantic. The American ERIC system has undoubtedly served as an example. Researchers and innovators, accustomed to working with scant means amidst general indifference, have at last emerged from the shadows. The role of educational research in determining educational policy is still far from being universally accepted. Continental countries in general and the Latin countries in particular are still very sceptical about empirical research in a field considered by most teachers to be one of values, philosophy and religion, and of freedom of choice for parents and teachers. The need to relate political, and hence ethical, choices to empirical knowledge is not yet recognised by everyone, not by a long way. But educational research has come in from the cold. Funds are provided for it, even if this is still felt to be expenditure for the sake of prestige, serving no real purpose but necessary to the country's international "image".

Moreover, it is noteworthy that applied research, that is, innovation in the structure of the educational system and in the classroom, has so far been the main beneficiary of this growing interest. There is evidence of this in the growing number of applied research institutes, which are required more and more to prepare curricula (content and methods) and assess the effects of changes in structure. This development has its counterpart in the still rather hesitant but more or less general steps being taken to organise permanent education. The present situation regarding what are considered by the various European countries to be priority areas of research is highly revealing. It shows that there is a certain constancy in the development of research, a process which all countries pass through, the more advanced having themselves traversed the same stages as the less advanced are going through now.

Applied research generally begins with curricular innovation, changes in mathematics, science and modern language syllabuses. Basically these innovations make no vital changes in the system ; they are designed to meet new needs in university teaching and do not reflect any sociological, economic or psychological change in education. Educational technology, i.e., films, tape-recorders and television, represents a second advanced sector of innovation, which has its origins outside the educational system itself, for instance in the concern of planners to reduce staffing costs in education or of manufacturers to find new markets. Generally speaking, such innovations are slow to be accepted because they represent a change of role for teachers, who therefore resist them. These innovations no long occupy the forefront in the countries leading in this field.

The second series of initiatives concerns the observation and assessment of major structural reforms in compulsory education decreed or proposed by governments : institution of middle schools, comprehensive schools and guidance systems, reform of examinations. This kind of applied research results from policy decisions made for ideological or economic reasons at the instigation of planners relying on the findings of basic economic research, and without the teachers being consulted.

Finally, and much later, the basic problems are raised : those of higher education, the adaptation of student intake to the needs of the economy, the retroactive effects on subject-matter, teaching methods and structures of changes in job qualifications and attitudes. Here pure research appears to be essential, to submit piecemeal curriculum innovations to a thorough examination. Most European countries have only just reached this stage, but the movement seems to be gaining ground and gathering momentum.

It becomes obvious, in these conditions, that the funds provided for pure research, which at one time seemed to serve so little purpose, are inadequate. Admittedly, there are, as we have seen, a few large pure research institutes in the educational system : The Max-Planck Institute in Berlin, the Paris Centre d'études sociologiques and the National Foundation for Educational Research in Slough, to give some well-known examples. But most research is done in universities, which are still ill-prepared for empirical research and are limited by their resources to doctoral studies by individuals, these being clearly inappropriate to subjects which require team-work that is both lengthy and costly.

The situation would seem to call for a bold policy and, above all, for a liberal policy, enabling considerable sums to be invested in research which, when proposed, may appear to be of little use but whose findings may later prove essential to decision-making. Centralised systems appear to be unfavourable to seemingly unnecessary research of this kind and so it would seem desirable to set up institutions with a large degree of scientific autonomy, yet financed by public funds. A European framework might be suitable for this sort of joint venture, modelled on European scientific foundations such as CERN or the European Science Foundation now being set up (8). This seems to be absolutely essential if Europe wishes to put an end to its de facto subordination to American research.

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QUESTIONNAIRE

The country reports that follow were based on the questionnaire which appears below.

1 THE ROLE OF RESEARCH

1.1 Special characteristics of the national education system which affect the role that educational research plays in it.

1.2 To what extent do researchers co-operate with decision-makers (parliamentarians, senior officials, etc.) in the preparation of educational policy at the national level?

1.3 To what extent do researchers co-operate with teachers, administrators and parents in the development of education at the local level?

1.4 To what extent has research contributed to reform in specific fields of education and to innovation in the classroom which may be adopted generally?

1.5 What are the main obstacles that prevent a greater impact of research on the classroom?

1.6 Experiments: co-operation of researchers in the design and evaluation of experiments; links between institutions carrying out such experiments and research organisations; innovation by teachers and participation of researchers in such innovation; the role of researchers in the generalisation of successful experiments; etc.

1.7 When and to what extent are student teachers and practising teachers familiarised with educational research?

1.8 To what extent has research been able to contribute to rationalisation and cost saving in the provision of education?

1.9 What has been the role of educational research in study reform and re-organisation at the post-secondary level?

2. GENERAL FRAMEWORK

The authors of the national contributions are requested to answer the following questions as far as applicable.

2.1 Promotion, planning and financing of educational research and development at the national level (or the level of Länder, cantons, etc.);

What machinery exists:

(a) to stimulate and promote educational R & D ?

(b) to plan and/or co-ordinate educational R & D ?

(c) to finance educational R & D ?

2.2 Expenditure on educational research and development: Are figures regularly available on actual or estimated total national expenditure on educational R & D ? If the answer is "yes", please indicate the percentage of total educational expenditure devoted to educational R & D in 1971 and 1972.

2.3 Priority fields:

Are there priority fields for educational research and development that have been or will shortly be promoted ?

If so, please indicate:

(a) what these fields are,

(b) why and how it was decided and who took the decision to give priority to them,

(c) any special measures that have been taken to promote R & D in these fields (e.g., financial measures),

(d) how any measures taken so far have affected the fields concerned.

2.4 Dissemination of information:

(a) How is educational research information disseminated amongst researchers?

(b) How are administrators and teachers in the classroom made aware of relevant educational research findings ?

(c) How is feedback from the researchers, administrators and teachers to the main educational research organisations ensured ?

(d) How far is research information disseminated to the public at large and to specific groups (e.g. parents) which may be interested in the findings ?

2.5 Impact of research on educational development and innovation:

(a) Are there any particular strategies for implementing educational research findings and promoting research-based development and innovation ?

(b) What experience has been gained so far with such strategies ?

3. FUTURE DEVELOPMENTS

3.1 Are there any trends or new measures under consideration which may change the present structure of educational research policy in the near future ?

3.2 Recently new forms of intensified European co-operation in educational research and development have been under study in international organisations. What, in the opinion of your government, should be the main programmes and procedures for such co-operation ?

COUNTRY REPORTS

AUSTRIA

BELGIUM

CYPRUS

DENMARK

FINLAND

FRANCE

FEDERAL REPUBLIC OF GERMANY

IRELAND

ITALY

NETHERLANDS

NORWAY

SPAIN

SWEDEN

SWITZERLAND

TURKEY

UNITED KINGDOM -

ENGLAND AND WALES

SCOTLAND

AUSTRIA

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Austrian education system which affect the role that educational research plays in it

The Austrian education system (with the exception of scientific institutions of higher learning and academies of fine arts) has gained a new basis with the School Organisation Act of 1962. In the same way, the General University Studies Act of 1966 provided a new legal framework for institutions of higher learning. Both acts have served as "go ahead signals" for further reforms.

The Austrian education system is to a high degree under the jurisdiction of the "Bund", this being especially true for the areas of higher and secondary education. At the same time the federal character of Austria's administration is seen in the dual control of compulsory schools by the "Länder" and communities. It should be mentioned that the "Bund" is responsible for school organisation, curricula, timetables, examination regulations, determination of the maximum number of pupils per class and also for teachers' salaries. "Länder" and communities only maintain buildings and facilities in the compulsory school sector, a function which is also carried out by the "Bund" in the secondary school sector. As mentioned above, universities and institutions of higher learning are maintained by the "Bund" - that is, by the Federal Ministry of Science and Research.

The Austrian education system is at present being reformed. On the one hand, areas which lay outside the realm of formal education (for example, adult education) or which had not been taken sufficiently into consideration (for example, pre-school education, which is now, like the kindergarten, the responsibility of the "Länder") are to be brought to some extent into harmony with education in the schools. For instance, the inclusion of pre-school education and adult education as subjects in teacher training curricula is at present under discussion. So too are pre-school experiments more broadly based in conception.

On the other hand, broadly designed school experiments have started in accordance with the 1971 fourth amendment to the School Organisation Act. These are to test comprehensive school models for 10 to 14 year-olds where differentiation is made according to performance, and where both advanced instruction and remedial teaching are provided.

Moreover, a bill is waiting to be considered by parliament which would progressively regulate the question of democratisation of schools and of pupils' responsibility. The expansion of both lower and upper secondary vocational schools enjoys the greatest priority because this sector has not received sufficient attention in the past, and because the economy is creating an ever-increasing demand for graduates of these types of school.

In a planned fifth amendment to the School Organisation Act, a legal framework for experiments in vocational schools would be provided.

The present trend in higher education reform is to determine afresh the duration of studies, the number of examination subjects, the relation between levels of advanced studies ("Diplom" and "Doktorat" studies); and, at the same time, to make it possible to regulate the microstructure of the studies - that is, the relative importance of examination subjects and the didactically correct sequencing of lectures - by passing laws for the different areas of study (most have already passed through parliament). In connection with these laws (dating from 1969), "Study Commissions" (Studienkommissionen) composed of professors, assistant professors and students with equal voting rights were created.

The idea of co-operation between teachers and students is also one of the prominent features of the University Organisation Bill which is at present awaiting consideration by parliament. This bill provides for a revision of the Austrian university structure.

1.2 Co-operation between researchers and decision-makers

There is a high degree of co-operation between researchers and research institutions on one hand, and governmental authorities and parliamentarians on the other. With the foundation of the University of Education in Klagenfurt a specific research institute was established to broaden the range of basic educational research. Such research is also being carried out in other university institutes. The co-operation between these research institutes and the Federal Ministries of Education and Art, and of Science and Research respectively is demonstrated by the fact that many research projects are being carried out at the request of these ministries. The same is true of non-university research institutes which have also been requested to undertake research projects in education.

A characteristic feature of the present situation is that research and development in the school sector is under the Federal Ministry of Education and Art. Under the Ministry of Education and Art, a specialised "Centre for Experimental Educationand School Development" was established, devoted to the co-ordination, planning, scientific control and evaluation of school experiments. The interest of the Ministry of Education and Art in the results of basic educational research is also demonstrated by the fact that a sub-committee of the Ministry's School Reform Commission (its members include administrators, parliamentarians, representatives of teachers, parents and pupils, and educational researchers) proposed a documentational survey of educational research in Austria. This has now been published and will be the basis for the English version of the survey of educational research requested by the Council of Europe.

Close co-operation between researchers and both the Ministry of Science and Research and that of Education and Art has resulted from research projects being carried out with international organisations. For example, the Vienna Technical University is working on a pilot model for the evaluation of data on student enrolment and examination records through electronic data processing. This should facilitate analysis of student progress and duration of studies. A further example of co-operation between basic educational research and educational administrative authorities is the project currently being carried out with OECD: the Second OECD Review of National Educational Policies. Within the context of this project, scientific models for all areas of the education system are to be elaborated, to serve later as bases for the political decision-making process.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

As mentioned in para. 1.1, the Austrian school system is to a high degree under the jurisdiction of the Ministry of Education and Art, that is to say that all pilot experiments, and all major innovative research projects can only be carried out in close co-operation with the Federal Ministry. This does not mean that teachers and parents do not co-operate in these pilot experiments. The role of teachers in individual pilot schools is very important; at the same time they are very active in drafting the curricula for experimental schools. Research projects are, however, centrally guided, when they are not undertaken by university institutes or independent research institutions.

1.4 Contribution of research to reform in the classroom

The importance of educational research for the innovation process is recognised in Austria, hence the foundation of the University of Education in Klagenfurt (see para. 1.1). However, it is at present too early to look for instances where educational research has had a direct impact on school and university education. Austria is in the initial stages of development in this field. The Austrian school and education system is at present undergoing a reform in which a great number of proposed models are based

on the results of basic research. This is true for the schools where alternative models are being tried out, and also for the higher education sector in which the already mentioned "Study Commissions", where all university groups enjoy equal representation, are operational. These "Study Commissions" are serving as pilot models for a later, broader participation of students and assistant professors in the academic decision-making process.

The feeling that educational policy decisions must be based on factual up-to-date material has led to significant results. In both the Ministry of Science and Research and that of Education and Art the statistical departments have been expanded. As a result of this expansion a student flow survey was carried out for the first time in the Vorarlberg Land. This has provided important information for planning purposes. At the moment a similar flow survey is being carried out in the Styria Land.

In para. 1.2 another student flow analysis in the field of higher education was mentioned (in co-operation with the OECD). It would not have been possible to carry out this pilot model if an intensive administrative reform had not taken place in Austria whereby student enrolment and examination records were computerised.

1.5 Main obstacles to a greater impact of research on the classroom

As mentioned in the introductory paragraph (1.1) the Austrian education system is centralised to a high degree. Because of this, every change necessitates amendments in the legal framework. For instance, a change in school organisation would require a two-thirds majority in parliament. Therefore, one major obstacle to the implementation of educational research in school and in the classroom lies in parliamentary procedures. Another obstacle is that administrators are not sufficiently aware of research developments to use such findings for the solution of burning practical questions, that is to say, in those cases where changes would be possible without parliamentary consent. Besides, it has been very difficult for decision-makers to have an overall view even of domestic educational research findings. This drawback has been overcome by a documentary survey of all educational research projects, and research findings can now be disseminated among education experts and administrators (see para. 2.4).

Of course, it will also be necessary to involve teachers in educational research and to acquaint them with the results of research carried out at home and abroad. This is achieved to a certain extent when teachers co-operate in research projects concerning school experiments. The involvement of institutions of teacher training and further training will be dealt with in detail under para. 1.7.

1.6 Researchers and educational experiments

In this connection we should again mention the Centre for Experimental Education and School Development within the Federal Ministry of Education and Art. All planning, co-ordination and scientific supervision of school experiments, which were extended in the school year 1971-72, originate at this centre. Because this planning and decision-making centre shares personnel with universities and research institutions (representatives of the education and psychology departments of the universities as well as representatives of the institutions of further teacher training and of the Federal Institute of Educational Psychology are attached to this centre), there is close co-operation among these institutions. Through the co-operation of institutions of further teacher training, the Centre for Experimental Education can encourage teachers to participate in school experiments which could not be carried out without the active involvement of innovative and creative teachers. In addition, leading administrators also belong to the centre.

The Centre for Experimental Education and School Development is divided into the following two central departments:

Department I: The department is responsible for working out plans for educational experiments, co-ordinating the direction of these experiments, developing new curricula and trying out appropriate new teaching aids.

Department II: Its activities are centred around scientific control of educational experiments, including evaluation of such control activity.

1.7 Familiarisation of student and practising teachers with educational research

The institutions of training and further training of teachers are very active in the field of educational research in addition to their normal educational duties. The combination of research and training can be considered to be a very advantageous pre-condition for the growth of research awareness among student and practising teachers. It cannot be denied, however, that more attention should be focussed on this area The training of secondary teachers is carried out in Austria by the universities. One criticism often levelled at this training is that professional preparation is not allocated enough time. In trying to avoid academic shortcomings, student teachers may not become as familiar with educational research problems as one might wish.

1.8 Rationalisation and cost saving through research

Cost saving in administration is the result of rationalisation measures. Such measures are especially stressed in Austria in the planning of the tertiary education sector, where they are urgently needed. For this reason, the Federal Ministry of Science and Research established an administrative reform commission composed of scientists and university professors as well as administrators. We cannot here deal with all the problems which are being handled by this commission, but it should be mentioned that a pilot model is being tried out in co-operation with OECD (see para 1.2) which should facilitate an organised control of examination achievements and the duration of studies through electronic data processing.

The difficulties arising from the reform of universities should not be underestimated. The centralisation of facilities, at present spread over several university institutes, is in itself not enough, since centralisation measures do not always result in simplification, acceleration and cost saving.

For the school sector there also exists a committee which deals with economic and cost saving questions. At the same time, a number of research projects are surveying economic problems in education. The survey of educational research in Austria mentioned above quoted three such projects. The principal costs affecting the school expenditure of the "Bund" are to be investigated by regression analysis, and estimates of future financial needs are to be undertaken in these projects. The findings of these research projects indicate a great gap between the goal projections of the educational planners and basic statistical facts. This is true not only for school education but also for higher education where cost analysis can at present be worked out only with great difficulty, as noted in the "Hochschulbericht 1972".

1.9 The role of educational research at post-secondary level

The reform of the post-secondary sector is at present in its beginning stages. Here, the work of setting goals by fixing examination subjects and the structure of fields of study (by means of laws and regulations governing study and by means of timetables) is under way. At the same time evidence of the democratic character of Austria is given by the participation of all who are involved in university life in the decision-making process (University Organisation Act). In the second stage of higher education reform it will be necessary to evaluate subject contents and teaching methods - that is to say

curriculum development in higher education will receive priority. Hence the Federal Ministry of Science and Research, which is responsible for the university sector of post-secondary education, supports research work in higher education. Meanwhile the "Study Commissions" which were established at several universities have gained the legal right to work out recommendations as regards teaching methods

Thus, the "Study Commission" established at the Technical University of Vienna suggested an investigation into the learning behaviour of students in selected areas of study and a survey of subject content and professional requirements in certain others. These suggestions were welcomed by the Federal Ministry of Science and Research which supplied the necessary funds for these studies. The survey of educational research in Austria which has already been mentioned also quotes other research projects on university teaching (programmed instruction, psychological aspects of learning and motivation as regards university and teacher education). The results will be useful in the second stage of university reform.

2. GENERAL FRAMEWORK

2.1. Promotion, planning and financing of educational research and development

Stimulation of educational research and development:

The creation in 1970 of the Federal Ministry of Science and Research resulted in a central authority of the "Bund" responsible for the co-ordination of research projects and for the planning of the allocation of funds in order to protect the interests in the field of research common to the various branches of the administration. At the same time, research and development are considered integral components within the jurisdiction of the various federal ministries. Therefore the individual ministries have authority over research and development within their own areas (Ressortforschungsbereiche).

In this context, the bodies responsible for research and development in Austria are:

The Federal Ministry of Science and Research
The Federal Ministry of Education and Art.

Both ministries have central departments (planning departments or sections) and central advisory bodies (Centre for Experimental Education and School Development, School Reform Commission and its sub-committees, University Planning Commission) which stimulate and promote research projects in the field of education. Aside from these ministries, institutions such as "Länder" school authorities, provincial governments, chambers of labour and of commerce, and private interests should be mentioned in this connection.

Planning and co-ordination:

The ministries mentioned above plan and co-ordinate educational research and development in those areas for which they have responsibility. In order to co-ordinate the educational research work which is promoted by non-federal authorities, a documentary survey of educational research was published by the Federal Ministry of Education and Art at the end of 1972 (see 2.4). Further surveys are planned.

Finance:

As has been said above, educational research projects are financed in Austria by the Federal Ministries of Education and Art and of Science and Research as well as by the "Länder" (school authorities of the "Länder" or of the Municipality of Vienna), by chambers of labour or commerce and by private bodies.

2.2 Expenditure

At present it is not possible to calculate the total expenditure on educational research in Austria. The reason for this is that besides the federal authorities, the authorities of the "Länder" and corporate and private bodies also finance educational research. The survey on educational research in Austria (see 2.4) says that "little exact and reliable data... in the field of the financing of research work could be reported". So too in the report of the federal government, presented to parliament in 1972, which does not contain a separate head for expenditure on educational research.

Perhaps those figures that are available could, however, give some idea of the expenditure on educational research in Austria. The Federal Ministry of Education and Art allocated in the years 1971 and 1972 the following amounts for research (the percentages in parentheses indicate the proportion of the total expenditure of the "Bund" on research and promotion of research):

Year	Million A S	%
1971	14,286	(1.07)
1972	15,564	(0.88)

These figures give only an incomplete picture because considerable amounts are spent by the Federal Ministry of Science and Research on educational research (of all the central bodies of the "Bund" this ministry actually allocates the greatest amount for research and promotion of research, for example in 1972 - 75.87%), but, as already mentioned, the available figures do not indicate the amount devoted by this ministry specifically to educational research. Some impression of the amount involved may be gained from the fact that the Fund for the Promotion of Scientific Research, which is financed by the Federal Ministry of Science and Research, allocated in 1971 3,330,670 AS (3.87% of its total expenditure) for the promotion of scientific projects in the fields of psychology and education.

2.3 Priorities

At the end of 1972, the Federal Ministry of Education and Art in agreement with the Federal Ministry of Science and Research published a survey of educational research in Austria (see para 2.4). This survey clearly indicates some focal points of educational research. These are:

- adult education,
- vocational training, vocational requirements, pre-conceptions about occupations, occupational desires, occupational opportunities, retraining,
- educational planning, including planning for higher education,
- educational sociology, (the problem of equality of educational opportunities),
- training and further training of teachers,
- university teaching,
- performance evaluation and comparison,
- political education,
- teaching materials,
- educational expenditure, the economics of education,
- pre-school education,
- educational documentation.

In cases where the research projects were requested by central authorities of the "Bund", the decision concerning the area to be studied resulted from the educational policy of the federal government as defined in the governmental declarations of 5 November 1971 and 27 April 1970.

To clarify this, it is necessary to refer to paras. 1.1 and 1.9 where it was pointed out that adult education and pre-school education have priority in educational policy. The same is true of research projects which deal with performance evaluation and measurement, because the findings of these projects are very important in the context of the current school experiments, aiming to test a comprehensive school model (with differentiation according to performance, together with advanced instruction and remedial teaching) where it is necessary to find objective criteria for the grouping of pupils and for performance comparison. The great importance of vocational education and the shift of emphasis towards the problems of subject content and teaching methods in higher education were also indicated in the preceding paragraphs.

Austria is giving considerable financial support to two projects being carried out in close co-operation with OECD.

- Pilot model for analysing examination achievement and duration of studies (see paras 1.2 and 1.8);

- The second OECD Review of National Educational Policies in Austria (alternative decision models for reforms in school and university education, see para 1.2).

The same is true for the EUDISED project, initiated by the Council of Europe. The Federal Ministry of Science and Research has established a special project group in order to co-ordinate Austrian participation. This project group has co-operated very actively in the elaboration of a German educational thesaurus.

Perhaps two other projects should be noted in this connection:

Pupil flow survey, Vorarlberg;
Pupil flow survey, Styria.

Both projects have the full support of the provincial governments involved as well as that of the Federal Ministry of Education and Art. It is planned to work out a provincial school development plan for Vorarlberg on the basis of the flow survey. This project will be carried out in conjunction with the International Institute for Educational Planning (IIEP) of UNESCO.

The success of the measures taken so far is demonstrated by the initiation of the projects mentioned above. With the exception of the pupil flow survey in Vorarlberg, none of these projects has been completed. Working groups have, however, already been set up and certain data have been collected.

2.4 Dissemination of information

The Federal Ministry of Education and Art in agreement with the Federal Ministry of Science and Research published for the first time a survey of educational research in Austria at the end of 1972, following a recommendation from the Economics of Education Committee of the School Reform Commission. The recording of developments and the completion of this documentation (it presently includes 102 research projects) are being planned. The purpose of this documentation is not only to aid decision-making in educational planning, but also to offer researchers an over-view of the present state of educational research in Austria. Moreover, this survey could stimulate further studies in this area.

Besides the documentation mentioned above, persons concerned are kept informed about the research and development work carried out in connection with the existing school experiments through articles in educational journals, and especially through the publications of the Centre for Experimental Education and School Development and through the journal "Schulreform", published by the Federal

Ministry of Education and Art. This journal, a supplement to the official "Wiener Zeitung", is directed at teachers. It includes reports from teachers working in experimental schools describing their experiences.

Feedback is ensured as project planners (that is to say, leading administrators of the Federal Ministries of Education and Art and of Science and Research) are in continuous contact with researchers and research institutions. Current problems, as well as individual study results, are often discussed by researchers and administrators and occasionally by teachers.

A broader public is kept informed by television and other mass media of developmental work in existing school experiments. Researchers involved in the planning of the school experiments are co-authors of the television programmes.

2.5 Impact of research on educational development and innovation

Strategies for implementing educational research findings and promoting research-based development and innovation:

As has been shown by the school experiments, Austria is following a development model with the following characteristics. First, research provides realistic development models which are put into practice step by step and are at the same time scientifically controlled and evaluated. After the appearance of concrete results, permanent innovative models are introduced.

Experience gained so far with such strategies:

The research and development model in the field of school education was first introduced in the school year 1971/72. Therefore, it is too early to speak about concrete experience. But the results already obtained exceed expectations in some points.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The research and development model described in 2.5 will remain unchanged in the near future. At the same time, the transfer of educational research projects and their results into data processing form is being discussed with particular reference to the EUDISED project, a project having full Austrian support.

3.2 Intensified European Co-operation

No information.

BELGIUM

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Belgian education system which affect the role that educational research plays in it

Educational research is a preserve of universities and, to a smaller degree, of institutions specialising in given disciplines. Subjects for research are decided upon by research organisations, without prior concertation. As a result, there is little sustained contact between research workers and the authorities responsible for organising teaching, or between researchers and school circles. There is at present no organic systematic link between researchers and education authorities, nor between research and actual teaching. There are, however, signs of a change in this sphere.

First of all, the Ministry of Education is increasingly calling upon university teachers to help on its committees dealing with reforms, and the teachers are only too willing to lend their assistance. Since 1971, moreover, there has been a gradual bridging of the gulf between educational management and educational research within the framework of the administrative organisation of studies and in the context of current innovations.

In order to determine more precisely what education should seek to achieve and to improve teaching methods, the government authorities are financing short-term contracts for research into specific topics directly related to matters of concern to decision-makers. Reform action initiated by the Minister tends therefore to be taken in close co-operation with the university faculties and institutes concerned. As a result, concertation between researchers and teachers has become more frequent and is now in virtually all cases looked upon as necessary and, indeed, as a matter of course.

It may in this connection be noted that in approximately a score of centres throughout the country some 70 research projects are carried out each year by 300 people, not all of whom have researcher status.

1.2 Co-operation between researchers and decision-makers

Co-operation between researchers and decision-makers consists mainly in assistance given by researchers in the work of committees and in research projects financed by the administrative organisation for educational studies.

Subjects for research are determined by committees comprising civil servants, school inspectors, teachers and researchers.

This collaboration between researchers and decision-makers is, however, still an exception rather than the rule in the sphere of national education as a whole.

Out of an aggregate budget appropriation of 150 million Belgian francs for educational research, a total of 7 million francs, that is a little more than 4%, is provided for active co-operation between researchers and decision-makers.

1.3 Researchers' collaboration at local level with teachers, administrators and parents

Until recently, co-operation of this nature was not very widespread, but the situation shows signs of improving.

As mentioned in 1.2 above, teachers have a say in the choice of subjects for research. Research,

and especially that financed by the Ministry, is to a growing extent conducted in "live" conditions, in the classroom, in direct contact with the true situation in schools. Furthermore, university research teams collaborate directly with teachers under the new assessment scheme now in operation in the reorganised secondary education sector.

The new assessment scheme aims principally at assessing patterns of behaviour and, in particular, mental processes as classified by Bloom. This technique sometimes confuses teachers who have not been taught how to apply it. When this is the case, teachers, each time they have difficulty in preparing assessment tests and in evaluating behaviour, may get into direct contact with researchers for assistance in settling particular problems.

Co-operation with decision-making administrative authorities takes place as outlined in 1.2 above.

The integration of parents into this system is not yet very far advanced.

Research work, it may be added, is also carried out in conjunction with those in charge of psycho-medico-social centres undertaking pupil guidance.

1.4 Contribution of research to reform in the classroom

As stated in 1.1 above, actual active research began in 1971 and in two years it has not, of course, been possible to achieve spectacular results. Also, it must be borne in mind that decision-makers are often constrained by pressure of events to take emergency measures without waiting for the outcome of research.

Although research has not as yet greatly contributed to the instigation of reform, it does help to gauge the effects of innovations and gradually to take corrective action.

1.5 Main obstacles to a greater impact of research on the classroom

The major obstacles to greater impact of research on the classroom have their origin in various factors:

a. Owing to the lack of ad hoc operational funds and bodies, educational administrators are unable:
   - to develop a coherent policy in concert with all the parties concerned;
   - to finance an adequate number of research projects;
   - to set up a documentation centre;
   - to disseminate information;
   - to introduce into further training programmes for teachers measures to make the latter research minded.

b. Tutors in charge of student teacher training do not do enough to familiarise student teachers with educational research practice.

c. Teachers:
   - tend to resist change when the results of research indicate the need for a change of attitude;

- are afraid that research carried out in their own classroom will lead to a critical assessment of their work;

- do not, of their own initiative, read up scientific research findings so as to keep themselves informed and thus compensate for the absence of an operational educational documentation centre.

d. Researchers find it somewhat difficult to translate the results of their work into brief practical conclusions for popular publication.

1.6 Researchers and educational experiments

Researchers take part in the planning, running and assessment of certain experiments. Some innovations are due to the initiative of teachers, but generally speaking, researchers have had no hand in them. Researchers help in extending successful experiments in which they have taken part. When research produces results which are used in schools, the way in which they are used is decided in collaboration with the researchers concerned. Researchers are almost invariably participants in committees responsible for drawing up school curricula.

1.7 Familiarisation of student and practising teachers with educational research

Student teachers and practising teachers are not kept adequately informed about educational research activities. Such information as they receive is conveyed to them by the means described in 2.4 below and in courses given by teacher trainers.

1.8 Rationalisation and cost-saving through research

No systematic research has been carried out into rationalisation and cost-saving in education, but this would no doubt be done in the event of an appreciable increase in appropriations.

1.9 The role of educational research at post-secondary level

So far reorganisation of post-secondary education has been very slight with research playing virtually no part. Research has at most stimulated the imagination of teachers and given rise to lines of thought which may lead to changes of attitude.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

No specialised body, at either national or regional level, is responsible for promotion, planning and financing of educational research. At the Ministry, the administrative authorities responsible for organising studies try to promote research but lack adequate funds and staff.

An educational research committee has been set up within the framework of the higher education administrative service, but it is not as yet operational (see 1.1 above).

2.2 Expenditure

It is not possible to give precise particulars of appropriations for educational research.

Approximate figures of government appropriations are given below.

In 1972 for Belgium as a whole:

a. Appropriations for general scientific research came to approximately 7,809,000,000 Belgian francs.

b. Grants made to the Ministry of Education for scientific research in general amounted to approximately 1,410,594,000 Belgian francs, or 18.08% of the total under (a) above.

c. Grants for educational research amounted to about 150 million Belgian francs, that is:

1.92% of the total under (a) above
10.63% of the total under (b) above
0.23% of the total Ministry of Education budget.

Financial support in the form of grants-in-aid from private bodies was negligible.

2.3 Priorities

The reform plans touch all levels of education, from pre-school to higher education. Therefore no level has priority, but if spheres calling for prior consideration had to be decided, they would be:

- pre-school education, since education in early childhood is of prime importance throughout a person's life;
- higher education for student teachers.

Among subjects taught, leaving aside higher education, priority is generally given to the mother tongue, mathematics and modern languages.

Priority in dealing with problems of teaching is given to those calling for urgent solution.

Particular attention is given to the following areas:

- assessment;
- educational technology;
- the development of mental processes: creativity, imagination, reaction to change, etc;
- social factors affecting educational ability: offsetting socio-cultural handicaps; adaptation to the school environment etc.

Priorities are determined by the research centres and to some extent by the Ministry, in the light of current preoccupations.

Research in priority sectors has greatly benefited as a result of contracts placed by the Ministry with research centres.

The measures taken in the priority sectors have made it possible:

- to improve the further training of teachers;

- to improve the mental ability testing procedures in the reformed secondary education;

- to develop standardised assessment tests to be given on completion of primary education and at the end of the second year of the reformed secondary education.

2.4 Dissemination of information

Dissemination of information is not yet organised on a systematic basis.

Information is conveyed to researchers:

- by the University of Ghent, which published a review entitled Paedagogica belgica academica which provides an annual conspectus of theses submitted in Belgian universities for degrees of bachelor or doctor of education;

- by the Ministry of Education, which publishes every two years in compliance with Council of Europe policy, particulars of research projects completed or in progress.

The Ministry hopes to issue shortly a series of publications entitled Research into Education, embracing highly technical publications for the information of research workers and giving particulars of research projects financed by the department.

There is no special organisation for distribution to potential users.

The Ministry also plans to publish at some future date a series entitled Teaching and Research, giving for general information the results of research financed by the department and comprising publications for administrators and teachers.

Communication with research bodies is maintained by means of:

- personal, direct contact; and

- more systematic and formal contact through the committees mentioned in 1.2 above

Dissemination of information to the general public is virtually non-existant and of no significance.

2.5 Impact of research on educational development and innovation

Prior to being given more extensive or widespread application, research results are introduced gradually, first of all in schools spontaneously entering into the spirit of the research, thereby ensuring that experiments are conducted in a favourable atmosphere.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

Consideration must first of all be given to ways and means of remedying the shortcomings to which attention is drawn in this report.

Owing to lack of funds it has not been possible to make definite plans to proceed along new lines or to change the current features of research policy.

3 2 Intensified European co-operation

While pursuing the excellent programmes in hand, European co-operation should be extended to new spheres, such as :

- the promotion and execution of international research projects in key spheres, the results of which might be applied in several countries;
- the setting up of an "information bank" of easy access based on the standardised descriptors of the EUDISED thesaurus;
- the publication of two reviews dealing with educational research, one in French and the other in English, providing a digest of information culled from published sources in languages other than that of the review concerned.

CYPRUS

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Cyprus education system which affect the role that educational research plays in it

The Cyprus educational system is highly centralised. The Ministry of Education is the exclusive planning agent for syllabi, curricula, time-tables and examinations.

It is evident that there is not much variation in the organisation of studies and the administration of the schools. However, there is flexibility in role of the teacher and teaching in the classroom as long as the curriculum is abided by. Curricula, especially in secondary education, are precisely defined. However, there is freedom - to a greater extent in the primary school, as the result of its nature which is developmental and more informal - initiated by the Inspectorate and the teachers themselves to experiment on methodology and to introduce innovations.

The institutions of higher education in Cyprus are the Pedagogical Academy for the training of primary school teachers and the Higher Technical Institute for the training of technician engineers. Because of the nature of the former institution educational research is encouraged among the students.

1.2 Co-operation between researchers and decision-makers

Since 1963 the Ministry has had a small unit occupied with research problems of practical use initiated by itself or commissioned by the departments.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

Co-operation between researchers, teachers and administrators takes many forms and it is easily established since in a sense research is centrally sponsored and encouraged.

a. Spontaneous research on a small scale, and usually within the teaching activity in the classroom, is encouraged by those responsible for the supervision of the educational system. The authorities, in practically all cases, give their approval for research of this kind to be carried out, and where necessary provide advice and the assistance of the services at the Ministry.

b. Large scale research projects must be approved by the authorities and are undertaken by the appropriate services of the Ministry.

c. In-service training for teachers provides opportunities for contacts with researchers, administrators and teachers and the exchange of views is beneficial to educational research.

d. Parents' Associations do not play a significant role in the development of research. However, their attitudes towards educational innovations are of value to researchers.

1.4 Contribution of research to reform in the classroom

Reforms such as the introduction of new mathematics in the primary school, new syllabi in technical education and free education, were carried out without preliminary research; we are now at the stage of experimentation to be followed by the evaluation of the results of the reforms. It was not possible to hold up the implementation of urgent reforms in order to allow research to be carried out first.

1.5 Main obstacles to a greater impact of research on the classroom

The main obstacle preventing research from having a greater impact on the classroom is the increase in financial expenditure to which qualitative improvements in the educational system suggested by research lead. In a centralised system like ours such increased expenditure will be at its maximum since reforms initiated by research will be on a nation-wide scale.

The new Institute of Education will play, it is believed, a major role in removing such obstacles in the future.

1.6 Researchers and educational experiments

This form of co-operation is related to existing co-operation between researchers and the other educational agents (see 1.3)

Many of the "spontaneous" experiments conducted in the schools by the teachers are not scientifically based in their design and the evaluation of the results. This is the result of the lack of means and instruments for evaluation. The present tendencies are towards the provision of such means and instruments together with in-service training in the field. The psychologists at the Ministry have undertaken experiments in some fields and have co-operated with the Inspectorate who are responsible for innovation in the schools. Co-operation between the Departments and Inspectorate and the researchers will have an impact on the training of teachers and the effectiveness of the results of reforms. Properly speaking, there are no special institutions which carry out experiments.

1.7 Familiarisation of student and practising teachers with educational research

There is no specified way in which teachers are familiarised with educational research. Because of the limited amount of research no such provision has been made. However, there are certain arrangements for the purpose, such as publications in educational journals and bulletins, organisation of short courses, talks to teachers and in-service training. Students at the Pedagogical Academy take a special course in research methodology and undertake small research projects under the supervision of their lecturers. It is hoped that the Institute of Education will organise and promote the flow of research information.

1.8 Rationalisation and cost saving through research

So far research has done very little to rationalise and reduce the cost of education. The innovations that have taken place were not the result of research work which seems to be costly and time consuming; instead the empirical approach was followed for the implementation of new ideas. However research is needed for the evaluation of the programmes which will lead to a scientific approach, which will be a more costly approach, but less costly in the long run in the effective running of the educational system.

1.9 The role of educational research at post-secondary level

Post-secondary education is confined to the Pedagogical Academy, the Higher Technical Institute, the Hotel and Catering Institute and the Forestry College.

The part played by research in post-secondary education has been confined to the utilisation of research findings from other countries and relevant to the function of these institutions.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The functions of the Institute of Education established in 1973 include the stimulation, promotion, planning and co-ordination of educational research, development and evaluation.

Financial provision for educational research and development is made in the Annual Estimates under several subheads of "Education" and "Cultural and Other Services".

2.2 Expenditure

Figures are not regularly available on actual or estimated total national expenditure on educational research and development.

2.3 Priorities

The priority fields are at present confined to practical problems requiring solutions within the Departments. Such priorities are:

Department of Primary Education

a. Fields of priority are in the area of curriculum evaluation: (i) modern mathematics introduced into the primary school a few years ago, (ii) language, especially in expression and spelling, and (iii) textbooks.

b. The introduction of modern mathematics was completed this year in all classes of the primary school. As with every major change, it has created doubts among teachers and parents as to its effectiveness. It is therefore necessary to undertake research programmes to evaluate the results.

Oral expression is a worrying problem and it is now necessary to get to the root of it. A spelling list compiled by the Ministry is used but its results in school do not meet our expectations. Research is faced with either revising the spelling list or inquiring into the practices of teaching spelling and the means used.

The textbook issue is more general. Educational materials need to be prepared on the lines of individualising instruction, which will set the scene for creative work in learning and the scientific approach to instructional problems.

The decision to investigate the above issues was taken by the Head of the Department of Primary Education in consultation with the Inspectorate.

c. One of the measures taken to promote R & D is the intended preparation of instruments (tests etc) to assess the present situation.

d. Research in the priority fields has not been completed.

Department of Secondary Education

a. (i) - Increasing the effectiveness of teaching in various subjects (mother tongue, science, social studies and English).

(ii) - Reduction of pressures on the students caused by the significance attached to marks, and the creation of other learning incentives for students.

(iii) - Consideration of the school as a unity, which will maximise instructional and administrative effectiveness.

(iv) - The smooth transfer from the primary to the secondary school by a combination and adjustment of the instructional programmes in such subject areas as language, social studies and science.

(v) - Increasing the effectiveness of the organisational structure of the school.

b. The priority fields stated above constitute long standing problems in secondary education.

The decisions on priority fields in educational research were taken by the Inspector General of Secondary Education for (i), (ii), and (iv) and for (iii) by the Director of Education through the Head of the Department of Secondary Education. In all cases, there was active participation of inspectors who had the co-operation of heads of schools and the teachers.

c. Measures taken as to priority fields (i), (ii), and (iv) include the enrichment of the means used by supplementary material and audio-visual media, systematic co-ordination of activities of inspectors and teachers, i.e. evaluation of results, regular conferences, etc., and the laying of greater emphasis on group and individual work.

Further, in a number of schools marking was abolished in class I and the co-operation of parents was encouraged. Also, co-operation between the Inspectors of primary and secondary education was encouraged for the revision of the instructional programmes.

As to priority field (iii), major inspections were carried out in a number of schools, followed by conferences of the Inspectorate to evaluate the role and contribution of the headmaster in the first place and also of the school to a certain extent.

d. More evaluation data are still needed.

Technical Education

a. (i) - A survey on the employment of all technical school graduates, which will lead to

(ii) - The evaluation of skills needed by various industries and the effects on the courses and the effectiveness of the organisational structure of the schools.

(iii) - The growing size of the schools, which leads to revision of their organisational and administrative structure.

b. Information is needed by the authorities to assess the type and level of skills needed by industry with a view to a continuous adaptation of the education and training provided. The decision to give priority to the above issues was taken by the Head of the Department of Technical Education after consulting the Inspectorate and with the approval of the Authorities.

c. One of the intended measures is the establishment of permanent liaison between industry and the schools so that the necessary feedback becomes available.

d. The surveys are affecting the courses provided by the schools.

2.4 Dissemination of Information

a. To researchers: so far dissemination has been through publication in journals, newspapers, bulletins and the reading of papers to conferences.

b. To administrators and teachers : as (a) and through conferences organised by the Inspectorate.

2.5 Impact of research on educational development and innovation

This is an area left to the Institute of Education.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The establishment of the Institute of Education will create conditions for the realisation of the role of research in education.

3.2 Intensified European co-operation

Co-operation on the European level in educational research and development should be based on common problems shared by member States. Some of our major issues which could fit into programmes of European interest are :

a. The consequences for and the repercussions on the educational system of the rapid expansion of secondary education;

b. Vocational education and training, with special emphasis on the 15-18 age group;

c. Compensatory education for the less socially and economically privileged groups, starting with pre-primary education;

d. The effective uses of educational technology in the schools.

DENMARK

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Danish education system which affect the role that educational research plays in it

The "folkeskolen" (public primary and lower secondary school) are municipal schools and comprise a voluntary pre-school year, nine years elementary schooling, and one year in the 10th form. Thus the administration and organisation of the "folkeskolen" is decentralised, which means that each municipality is comparatively free to plan in accordance with local wishes and possibilities. This applies mainly to the set-up of the local school structure but also to regulations governing instruction itself, including the weight and extent of a single subject.

According to provisions in the existing Primary Education Act certain subjects are compulsory for all pupils at different age levels, while others are optional for pupils in the 8th-10th forms. But the actual curriculum, which also embodies the number of lessons intended for each subject and class level and the content of such lessons, is worked out by the municipality for the central school authorities.

Likewise, each teacher is given considerable freedom as far as planning and his choice of teaching methods and material are concerned. He is expected to co-operate with his pupils as far as is feasible.

The Ministry of Education puts forward proposals for curricula covering all subjects. These are, however, only intended to guide and support the local school authorities in their elaboration of the individual curricula and to help each teacher to plan his lessons.

Moreover, the Ministry's senior officials and consultants only act as supervisors to the local school authorities and teachers.

The great degree of freedom granted to each municipal school and its teachers has to a certain extent promoted local initiative which affects school development and innovation and the execution of educational research. On the other hand, the decentralisation of the "folkeskolen" has somewhat obstructed attempts at joint and centralised innovative work.

1.2 Co-operation between researchers and decision-makers

See 1.3.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

The government of the "folkeskole" is largely decentralised (as mentioned in 1.1). This is clear from the fact that the municipal councils decide on all matters relating to their respective schools in accordance with regulations laid down in the Primary Education Act, under the supervision of the county to which they belong.

Through the work carried out partly by the municipality's own supervising bodies (parent-teacher committees and school boards, which more often than not include members of the municipal council) and partly by the teachers and the administrative staff, it is ensured that all groups connected with the school and interested in its welfare are involved in co-operation on details concerning all school affairs. This means that experiments and innovative ideas can only be accomplished through collaboration, no matter who took the initiative in the first place.

Educational research and innovative work in the "folkeskole" is frequently carried out by the teachers themselves supported by local school psychologists and educational consultants, some of whom belong to educational research departments of the municipality, where these exist. In addition, it is possible for the schools to be assisted in their research by the Danish Institute for Educational Research (Danmarks Pædagogiske Institut), the Royal Danish School of Educational Studies (Danmarks Lærerhøjskole), and the Board of Experimentation of the Public Primary and Lower Secondary Schools (Folkeskolens Forsøgsråd).

The Danish Institute for Educational Research and the Royal Danish School of Educational Studies are national research bodies, and the School of Educational Studies also serves as a further training centre for teachers at "folkeskolen" and private schools. During actual research and innovative work both institutions closely co-operate with teachers from all schools in the country. This should ensure that links are established between theoretically based educational work and teaching at the various schools.

The Board of Experimentation assists the Directorate of the Public Primary and Lower Secondary Schools and the Teacher Training Colleges (Ministry of Education) in its task of supervising, inspecting, and promoting ideas with regard to research work at the schools. The schools, for their part, have the opportunity of being guided by supervisors specialising in research and of receiving State grants (to a limited extent, however, because of a tight budget).

1.4 Contribution of research to reform in the classroom

Three fields dealt with by the Bill for a new Primary Education Act, currently being discussed by parliament, may help to illuminate this question. Each of these fields comprises a project, the findings of which can confirm the positive effects up to now of research on reform in the classroom and will be described below. This, however, does not mean that educational research has been emphasised sufficiently within any of those fields.

a. Guidance service in the "folkeskolen": in the Bill it is mentioned that among other tasks the "folkeskole" must ensure for the pupils an all-round education, provide saleable skills and a wide choice of future employment, and induce independent decision-making.

During experiments in various regions of the country with the introduction of a wide range of optional subjects into a comprehensive school system the mode and extent of guidance given to pupils and parents have varied considerably. Whether a substantial part of the guidance service ought to be the responsibility of a teacher chosen specifically for that purpose has also been discussed.

Descriptions of various kinds of guidance service are available, and very recently a thorough and systematic survey of professional guidance staff has been published.

The findings of this survey appear at a time when central and local authorities are deciding on the future organisation of the school guidance service. Its effects can also be traced in the present debate on these problems. So far, indications are that the central role in guidance work at all class levels will be the class teacher's.

b In the present Primary School Act, as well as in the Bill, great importance has been attached to the flexibility of the initial phase of schooling.

Innovative work is being carried out in a number of areas and is characterised, for example, by co-operation between schools and kindergarten and pre-school classes, by periods of preliminary observation with subsequent conferences followed by further observation and support for slow learners within and outside the framework of the classroom and aided by

assistant masters. Several such arrangements have already been described; one investigation is still in progress. The effect on the organisation of the initial phase of schooling can be traced in many parts of the country.

c. In the Bill it is indicated that special schooling or other educational aid is to be given to children whose development requires special attention or support.

Innovative work has been in progress for a number of years and is pointing towards an integrated and co-ordinated system of special education. The aim is to let pupils with all kinds of learning difficulties remain in their original classes and receive special tuition there, and to take measures to improve classroom surroundings and teaching, not least for preventive reasons

1.5 Main obstacles to a greater impact of research on the classroom

There are several reasons why in Denmark major political and administrative decisions on general teaching conditions are not based on, or merely refer to, educational and psychological findings. In principle, however, political and administrative authorities favour educational experiments. On certain occasions they have actually stressed the importance of such work, but only rarely are final decisions affected by the findings. Fundamentally, politicians and administrators maintain a positive attitude towards educational research but are reluctant to contribute financially towards promoting any activities of importance. A comparison with the field of public health, for example, shows a greater readiness to grant the financial means necessary and to pay adequate attention to the results of medical research.

Another reason for the limited influence of educational research on political and administrative decisions may be attributed to the fact that up to 1970 no steps were taken in Denmark to co-ordinate the endeavours of educational research at the "folkeskole" level. Thanks to the formation of the Board of Experimentation of the Public Primary and Lower Secondary Schools (Folkeskolens Forsøgsråd) in 1970 an attempt has been made to create a certain co-ordination of experiments and research, particularly with regard to teaching methods in the "folkeskole". However, it is stressed that the Board's role has not yet been fully developed, nor does the Board possess the necessary financial means to solve the above-mentioned task satisfactorily.

In this connection the problem of generalisation is of importance. Only results from experiments and research with general application within the "folkeskole" will prove influential on decision-makers. Many findings do not possess such general features. But a sufficiently enlarged Board might be able to take a greater initiative and to promote the centralisation of efforts made within the field of educational research in order to arrive at projects having a greater potential application.

If educational research is to become beneficial to the classroom, several groups must have a positive attitude to the problem.

- The teachers must be prepared to co-operate with the researchers and must be open to new educational ideas.
- The parents must realise that educational experiments are carried out for the benefit in the long run of their own children.
- The researchers must be prepared to take up tasks of general significance for education and teaching.
- The politicians must be willing to grant the necessary financial support and, in their

parliamentary work, to consider findings derived from educational research.

- The administrators within their respective activities must aim at close collaboration with the existing research organisations. In Denmark these are the Danish Institute for Educational Research (Danmarks Pædagogiske Institut), the Royal Danish School of Educational Studies (Danmarks Lærerhøjskole), and the Board of Experimentation of the Public Primary and Lower Secondary Schools (Folkeskolens Forsøgsråd) as far as the "folkeskolen" are concerned.

It is possible that educational research into classroom teaching will be given more emphasis in the future, if the above groups are willing to attach more importance to this particular field than has so far been the case. The establishment of a joint planning committee for all teaching and education in Denmark may enable research work to be accorded greater significance in the future, at post-secondary level too, for instance by the appointment of ad hoc research groups.

1.6 Researchers and educational experiments

In practice, co-operation between practising teachers and researchers working with innovation and educational experiments takes various forms. The pattern shows a steady change from experiments primarily led by researchers to innovative work primarily led by teachers.

As stated in 1.3 above, in order to establish educational research and innovative work at a school, consent must be given by a parent-teacher committee and a teachers' council. This consent must be approved by the local municipal council and, in certain cases, by the county and the Directorate of the Public Primary and Lower Secondary Schools and the Teacher Training Colleges in the Ministry of Education.

The Danish Institute for Educational Research and the Royal Danish School of Educational Studies carry out a great amount of educational research and innovative work at schools in various regions of the country. In these projects the teachers act as the researchers' assistants or collaborators.

Researchers attached to the above institutions and supervisors of the Board of Experimentation of the Public Primary and Lower Secondary Schools can be consulted by teachers working with experiments and innovative work in their own field of specialisation and in their own school.

Schools and organisations can obtain additional assistance for carrying out projects from educational research experts attached to local institutions of school psychology and departments of experimental education.

It is planned to establish local departments of experimental education in a number of municipalities (at present they exist only in the boroughs of Copenhagen and Gladsaxe). These departments are expected to put forward independent views relevant to educational research and to give support to teachers.

1.7 Familiarisation of student and practising teachers with educational research

Information concerning educational research could have been disseminated on a considerably larger scale than is the case today. However, during recent years several steps have been taken towards improving the flow of information.

Since 1968 the Ministry of Education has published a journal "Uddannelse" (Education) in which research-based work is frequently reported.

The Board of Experimentation of the Public Primary and Lower Secondary Schools (Folkeskolens Forsøgsråd) has published some articles and is planning the publication of reports on, for example, new findings in school psychology, open plan schools, and counselling.

The Royal Danish School of Educational Studies (Danmarks Lærerhøjskole) arranges long and short courses for practising teachers. These courses deal primarily with the feedback of educational research findings. In addition, the School offers courses of three to four years duration of which educational research forms a major part.

The Danish Institute for Educational Research (Danmarks Pædagogiske Institut) conducts comprehensive research work and produces frequent publications on the findings of such work.

The National Research Centre of Education (Statens Pædagogiske Forsøgscenter) informs teachers of research findings by means of the press and its own publications.

The Danish National Institute of Social Research (Socialforskningsinstituttet) has been dealing with educational problems to a considerable extent in its publications.

As far as student teachers are concerned, conditions vary considerably at the 22 training colleges in this country (the above-mentioned information is distributed to a certain extent to the students). However, it is beyond doubt that educational research material is applied in college teaching to an ever increasing extent.

1.9 The role of educational research in higher education at post-secondary level

The Board of Vice-Chancellors (a board of principals of colleges and universities) has been responsible for two committees working on problems in connection with higher education (evaluation and the institution of external examiners). In addition, a committee is at present working on problems concerning examinations and evaluation. These committees have necessarily let foreign and domestic educational research findings relevant to these problems serve as guidelines.

The Planning Board for Higher Education has been in charge of a Working Party, the so-called "inner structure party", which has been working on university problems of a "structural" nature. This Working Party has put forward a draft which is at present being discussed by university circles. The university centres of Odense and Roskilde may be said to be run basically as pilot projects, as will the university centre planned at Ålborg.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

Educational research falls within the fields of research covered by the Research Council for the Humanities, established in 1968 to advise the Ministry of Education in this field and to initiate, co-ordinate and support such research.

The Danish Advisory Science Council, established in 1965, is responsible for the co-ordination of all scientific research activities including, as the case may be, educational research projects.

The Danish Institute for Educational Research was established in 1958 with the object of stimulating all educational research activities. The Institute, which is directly responsible to the Ministry of Education, carries out research related to education and is also responsible for assisting, planning and co-ordinating educational experiments outside the Institute and for analysing the results derived from them.

The Board of Experimentation of the Public Primary and Lower Secondary Schools was established in 1969 to act as an advisory body to the Directorate of the Public Primary and Lower Secondary Schools and the Teacher Training Colleges in the Ministry of Education.

The Board submits to the Directorate for approval recommendations on proposals for educational experimentation compatible with the educational aims of the "folkeskole". The Board further submits recommendations on State aid for carrying out such proposals. The Board gives its opinion on proposals for experimental educational arrangements submitted to it by the Directorate, that are within the purview of the general provisions of the law. It supervises approved experimental teaching and is responsible for the publication of the results.

The Board may further take the initiative in launching educational experimentation within the "folkeskolen".

The Board of Experimentation of the Public Primary and Lower Secondary School has its own secretariat. At present its staff consists of two advisory officers.

A board for experimentation within the vocational field of education was established in 1972 in order to plan and implement new forms of training in this sector.

Ministerial committees charged with responsibility for taking initiatives in innovation, for example changes in curricula, and for advising the Ministry on new structures within the different fields of education, may become instrumental in promoting research activities. This is especially the case as far as the Planning Board for Higher Education is concerned, which to a certain degree acts as a liaison organ between the administrative authorities and research in general.

Up to now neither the Advisory Science Council nor the Research Council for the Humanities have taken up their responsibilities in the field of educational research. The Planning Board for Higher Education has been responsible for co-ordinating and planning research within its field of activity during this period.

Educational research is financed partly by separate provision in the ministerial budget including that for the institutions already mentioned, and partly by funds administered by the Research Council.

2.2 Expenditure

Figures covering total expenditure on educational research are not available because most research activities are carried out by universities and other institutions of higher education in connection with their activities and are consequently not specified in the budget.

2.3 Priorities

The following priority fields can be listed:

- Reform of structures and curricula in higher education;
- Technical and commercial education, especially as regards the establishment of new structures of education and training in preparation for a radical reform to replace apprenticeship training;
- Lower secondary school: structure and curriculum development aiming at establishing a unified comprehensive school covering the first to tenth forms;
- Upper secondary school: curriculum development aiming at diversification and individualisation; integration of vocational education;
- Computerised education and training in electronic data processing in all fields of education;

- Guidance;

- Reform of teaching methods at all levels.

Special committees have been set up in the fields mentioned above to carry out experimentation and to initiate research where appropriate.

Experimentation is carried out in most fields by central as well as by regional authorities and by interested schools, but only to a certain extent have research activities been influenced by administrative decisions regarding priority fields of innovation and development.

2.4 Dissemination of information

The Danish Institute for Educational Research and the State Library of Pedagogics both publish annual reports and lists of literature including articles on research activities and provide general information on educational research matters of interest to teachers.

The latter is also responsible for keeping the regional school centres informed about educational research and educational innovations and developments.

The Ministry is represented on the Planning Board for Higher Education by the senior administrators and is thus kept informed about research in this field. The Ministry is also represented on the Board of Experimentation of Public Primary and Lower Secondary Schools.

The Danish Institute for Educational Research, being under the authority of the Ministry of Education, informs it through reports and surveys on current educational research projects and their results. This is also the case for the Danish National Institute of Social Research.

In most other fields of educational research the information received by the Ministry may be regarded as informal.

The Schools Centres are, inter alia, responsible for disseminating the results of research to the teachers.

2.5 Impact of research on educational development and innovation

No information.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

No information.

3.2 Itensified European co-operation

No information.

FINLAND

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Finnish education system which affect the role that educational research plays in it

The education system in Finland will undergo profound changes at all levels of education. Reform plans are most developed in basic education where their implementation has already begun. The reform will be implemented in the whole country during the period 1972-77. The planning of the reform of secondary education is still at an initial stage. A committee report has just been published, in which the general aims of secondary education are explained and a proposal for a secondary education system is made with these aims in view. It is likely that the implementation of the reform can begin at the end of the 1970s or at the beginning of the 1980s. A committee report and a survey concerning the organisation of pre-primary education have also been published, and experimental activities in this field have been launched.

Basic education has so far been based on streaming. The four lowest classes have been the same for all pupils, and afterwards the age group has been divided into two forms of education, which are radically different from each other both as regards educational content and the facilities which they provide for further education. In recent years, schooling has lasted for a period of eight to nine years depending on the choice of the pupil.

The new basic education system is based on the principle of comprehensive education. The comprehensive school covers a nine-year period, and is compulsory for all pupils. Teaching provided during the first six years is the same for all, while there is differentiation in the last three years as to the scope of certain subjects.

The pupils can also choose a certain number of optional and voluntary subjects. A central issue in the experimental and research activities connected with the comprehensive school has been to find out how an unselected, heterogeneous age group can be given the same instruction and what kind of learning achievements can be expected.

1.2 Co-operation between researchers and decision-makers

Co-operation between researchers and decision-makers is, on the one hand, concentrated in various committees, commissions, etc. On the other hand, such co-operation has been promoted by the ad hoc research work carried out by research units of various universities financed by the Ministry of Education and government offices.

There have been shortcomings, however, in the forms of this co-operation as well as in its co-ordination. Some overlapping of research activities has also appeared.

One of the tasks of the Council for School Research, appointed by the Council of State on 15 April 1970, is to eliminate the shortcomings referred to above. The tasks of this body are as follows:

- to draw up an overall programme for the development of school research and to keep the programme up to date;

- to promote co-operation and communication between school administration and school research so that is is possible to utilise the results of school research at all stages of decision-making concerning schools and education;

- to draw up and co-ordinate school research policies by giving institutions and researchers pursuing school research recommendations concerning topics of research and division of work, and
- to carry out other duties assigned to it in due order.

Representatives of both school administration and school research are members of the Council.

To improve co-operation between research and decision-making organs is one of the aims of the committee appointed by the Council of State on 27 July 1972. This committee aims at transforming the general objectives of educational policy into curricular entities and general principles on methods, which can be utilised by the bodies which carry out curriculum development.

Another of the tasks of the committee is to make proposals for the development and co-ordination of research necessitated by curriculum reform and to make proposals for the short-term development and co-ordination of curricula and for connected experimental activities.

Co-operation between research and decision-making organs has improved, however, mainly as a result of the following factors:

- policies and priority fields in educational research and development are being defined by the school administration authorities;
- correspondingly, in the field of research, efforts are being directed towards areas of development where the need for information is most urgent.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

See 1.6 below.

1.4 Contribution of research to reform in the classroom

Generally speaking, school research can be considered to have been directed mainly to the following major problems:

- analyses of objectives;
- differentiation of teaching;
- development of pre-primary education;
- development of teaching materials;
- curriculum co-ordination;
- surveys of pupils' social background;
- development of upper secondary schools (sixth form);
- assessment.

When we evaluate the extent to which research has affected specific fields of education - within the framework of the above items - we can establish at least the following achievements and reforms:

- production of new teaching materials;
- introduction of new working methods and new classroom arrangements;
- reforms in student assessment;
- structural changes in curricula.

1.5 Main obstacles to a greater impact of research on the classroom

The main obstacle to a greater impact of research has been and will be the problem of utilising research results. In other words, it is difficult to make the results felt in the actual school work. School administration bodies are currently developing methods aimed at deriving from the research results practical instructions, methodological proposals, advice, recommendations, etc., suited to the purposes of the education system. It has also been established that an efficient information system covering all levels of school administration and education is needed for this purpose.

1.6 Researchers and educational experiments

Co-operation of researchers in the planning and evaluation of experiments has not so far been very extensive. There has been some participation by researchers in the evaluation of certain experimental projects. In connection with the evaluation of comprehensive school experiments, the co-operation of researchers has been fairly extensive.

The official link between the institutions carrying out experiments - which have been mainly individual schools - and the research organisations involved has been the Research and Development Bureau of the National Board of Education. This Bureau has concluded official contacts relating to experiments with various research institutes. Such activities are gaining ground at the moment. Otherwise contacts between units conducting experiments and researchers have been dependent on individuals.

Innovation in schools has been based on the initiatives of individual teachers, and - increasingly of late - of groups of teachers. Researchers do not work at schools but in research institutes connected with universities. It is understandable, therefore, that the role of researchers in the innovatory work carried out by the teachers has not been so great.

There has not been any systematic activity for making the results of experiments generally known. Steps have, however, been taken to eliminate this shortcoming, and it is intended to involve the researchers in this work. Brief summaries are made of the results of experiments and associated research, and the aim is to inform all interested parties of successful experiments and their results.

As a rule, experiments have been relatively unorganised and conducted without centralised control and supervision. Attempts are to be made in the future to concentrate experimental activities on major problems of the education system and to combine experiments into extensive projects, with researchers participating in the project planning. The aim is to carry out these experiments from the very beginning in such a way that it is possible to evaluate the results with sufficient accuracy The implementation of this plan would require a certain number of educational researchers to specialise in the planning and evaluation of experimental schools.

1.7 Familiarisation of student and practising teachers with educational research

The system of training teachers for comprehensive schools and senior secondary schools will become subject to a reform over the next few years. Owing to streaming in education, the training of teachers for the level corresponding to that of the comprehensive school has been divided up to now between two parallel organisations. Primary school teachers have been trained in three institutions of higher education, in two temporary teachers' training colleges as well as in primary teacher training schools. Lower and upper secondary school teachers have a university degree, in addition to which they have received educational training at secondary schools providing teacher training.

In the new teacher training system, the training of teachers for comprehensive schools and for senior secondary schools has been concentrated in universities and in educational institutions which work in co-operation with these universities. In 1973-75, faculties of education will be established in universities; these faculties will act as teacher training units, and as units for pedagogical training and research.

Educational research is now considered to have a central role in the development of teacher training. At the stage of their basic training, the trainees get acquainted with various research situations and pedagogical experiments. In the training of teachers for comprehensive schools and senior secondary schools the duration of pedagogical training is on an average one term. How comprehensive its pedagogical training should be, and how it should be linked with the other, specialised studies of the trainees, is a central problem in the reform of teacher training. Attempts are being made to shed light on the matter through probjects consisting of curricular experiments.

In their further training, teachers have been acquainted with the most recent results of educational research by means of training courses and reports on the results of research. On the other hand, research is increasingly being directed towards the routine problems confronted in everyday teaching.

1.8 Rationalisation and cost saving through research

There are no investigations available concerning the extent to which research has contributed to rationalisation and cost saving in the provision of education.

1.9 The role of educational research at post-secondary level

During the most recent years, the degrees and study programmes in various special fields of study, such as architecture, medicine and economics have been reorganised in the Finnish institutions of higher education without any overall planning. In 1969, a committee was appointed to examine the planning of study programmes in the faculties of science, humanities and social science where almost 50% of university students are pursuing their studies. This extensive task (it was completed at the end of 1972 and the recommendations will be implemented in the coming years) aroused interest among educational researchers, and the Committee launched extensive research projects. The directives given by the researchers have exercised a decisive influence on the committee's proposals in important matters. The contribution of the research activities may briefly be characterised as follows: whereas the reform of study programmes had previously been considered as a mere technical question, sometimes even as a question concerning only the system of registration, the educationalists in higher education now proved that the form of the degree essentially affects the study process. The greatest attention was given to the planning and objectives of educational activities and programmes at the institutions of higher education. It was considered that it was not possible to pursue profitable full-time studies when educational objectives and the interrelation between education and society were ambiguous or non-existent.

By emphasising an overall approach and goal orientation, the researchers in the field of higher education demonstrated that didactic improvements are insignificant if education lacks planning. In the coming reform of the degrees and study programmes, more attention will be given to, among other things, the importance of technical equipment in teaching, but the reform aims at a more extensive result. The researchers have also demonstrated that it is necessary to combine higher education more closely with other vocational education.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The development of educational research organisation in Finland has two origins. On the one hand, fundamental research has been organised according to the general procedures on which all scientific research is based. On the other hand, the plans and decisions concerning the reform of the school system have had to be based upon information gathered with the help of research, and thus it has been necessary to construct a system of educational research to help educational decision-makers. Development in both fields has been intensive in the last decade and especially in the last few years. At the same time it has been necessary to consider questions concerning the collaboration of decision-makers and researchers, and an effort has been made to develop an organisation where effective co-operation is possible.

The general system for fundamental research

The Science Policy Council and the Academy of Finland (Central Board of Scientific Research and the Research Councils including the Research Council for the Social Sciences) are in charge of science policy.

The Science Policy Council considers matters of principle related to research and scientific education. In co-operation with the Council of State and the ministries, it deals with:

- general development, priority areas, co-ordination and planning of higher education and research, the demand for research and development within the various sectors;
- international research co-operation;
- distribution of research input between the ministries and the defining of priority areas of research and development;
- legislation on research, education and scientific information;
- plans for establishing, suspending or changing the activities of a research institute, university or similar institute of higher education.

The members of the Science Policy Council are the Prime Minister, one of the two Ministers of Education (the one who is in charge of higher education and research), the Minister of Finance, the Minister of Forestry and Agriculture, a Minister of Trade and Industry (the one who is in charge of development of industry), two other Ministers appointed by the Council of State, the Chairman of the Central Board of Scientific Research, the Chairman of the National Council for Higher Education, and in addition five experts appointed by the Council of State for two three-year periods at a maximum. At present two of the experts represent social sciences.

The Department of Higher Education and Research at the Ministry of Education prepares matters for the Science Policy Council.

The Academy of Finland (Central Board of Scientific Research and the Research Councils) is reponsible for science administration. The Central Board and the Councils prepare proposals for the Ministry of Education and the government, make statements and submit schemes for research projects to various institutes irrespective of the administrative unit on which the institute depends. Each Council has a budget of its own, which however is a negligible fraction of the total research input in Finland.

A programme for general science policy is being prepared by the Science Policy Council which was appointed in 1972. A basic programme was presented by the Central Board in 1972 ("A programme for science policy": Central Board of Scientific Research, The Academy of Finland, Helsinki 1972).

The Research Council for Social Sciences, which is one of the six research councils subordinate to the Ministry of Education, also decides on the order of priority of research projects in the field of education and on the allocation of budgetary funds for such projects. Like that of all the other research councils, the purpose of the Council is to prepare plans for the Ministry of Education for the development of research in its respective field, to support outstanding research programmes and to initiate such programmes as well as to propose the practical application of research results. The Chairman and the members of the Council are qualified researchers in the various fields of social sciences. The Research Council for the Humanities also deals, to some extent, with matters related to educational research.

The Central Board has 10 members; two of them represent the social sciences. The Research Council for the Social Sciences consists of 14 members representing various aspects of social research.

As far as science policy is concerned, the roles of the Science Policy Council and the Academy are in most cases consultative; the funds channelled through the separate councils represent only about five per cent of the total research input. The Science Policy Council does not allocate funds, but its activities have an influence on the direction of the flow of funds. The Research Council for the Social Sciences has a dual function; it is an advisory body with executive functions.

In addition to research activity carried out within the Academy of Finland a second central mechanism of basic research should be mentioned: the basic research that is carried out at university research institutes and at other research institutes. University institutes of education, special education, adult education, psychology, etc., carry out abundant basic research in the field of education. Most of this research work takes the form of theses (master theses, licentiate theses, and doctoral dissertations). In addition, basic research is carried out at the Institute for Educational Research, which is the only national research institute for educational research.

As far as educational research is concerned, it is often difficult to distinguish between basic research and applied research. Most of the studies carried out by university education departments listed above are basic research studies. The majority of the investigations carried out at the Institute for Educational Research, however, have been directed towards applied research and development.

The financial control of educational research and development is mainly the responsibility of the National Council for Higher Education and the Ministry of Education, which can decide on these questions (in connection with budget considerations).

There are also non-governmental organisations like the Finnish Society for Educational Research, the Finnish Population and Family Welfare League, and other private societies and foundations (the Finnish Cultural Foundation) which provide grants for basic educational research.

The system for applied research and development

In Finland the Ministry of Education and the central bureaux subordinate to it, i.e., the National Board of Education and the National Board of Vocational Education are responsible for the development of school education. In the Ministry of Education the Schools Department and especially the Department for Higher Education and Research also grant funds for educational research purposes. The majority of actual development work, however, is carried out by committees. The committees are preliminary bodies which the Council of State sets up and which, having completed their work, present their suggestions for any necessary procedures to the Council of State.

With the comprehensive school reform, the significance of educational research for informing decision-makers became quite apparent in Finland. The administrative structure of the National Board of Education was reorganised, and in connection with this reorganisation a Research and Development Bureau and a Planning Bureau were established. The task of the former concerns the pedagogical planning, research and experimentation activity of the school system. The latter has concentrated on the quantitative planning of schooling.

The comprehensive school reform also led to the foundation of a national research institute which had been planned for decades. The Institute for Educational Research, founded on private initiative in 1957, was attached to the University of Jyväskylä in 1968. Its purpose was defined as follows:

- to conduct basic educational research and to undertake educational research for practical application;
- to carry out educational research projects and investigations at the request of educational authorities for the purposes of the said authorities;
- to promote the development of instruction in education subjects and of educational research in the universities and of university pedagogics in general, and
- to provide information both in Finland and abroad about educational research.

The Ministry of Education appoints two of the seven members of the Institute's board. The Institute consists of six departments:

- Department of Applied Research
- Department of School Research
- Department of Evaluation
- Department of Higher Education Research
- Department of Educational Research Methodology
- Department of Information and Documentation

Most applied educational research directed towards the development of school and higher education is carried out in the Institute for Educational Research. The Ministry of Education and the National Board of Education have allocated funds to the Institute, and special departments have been set up for school research and higher education research activities. The evaluation department carries out the design of school tests necessary for the measurement of school achievements. Also the committees can undertake research in the Institute for Educational Research for their own purposes.

With the increase of research activities, there has been a need for close co-operation between decision-makers and researchers within the field of research directed towards the development of school education. As mentioned above on page 46 the Council for School Research was set up for this reason in 1970.

The Council for School Research is an advisory body which does not decide the allocation of grants, nor does it determine the investigations. Its main task is the co-ordination of research activity and the drawing-up of overall programmes. The Council is presently drafting the general programme for the development of school research, and its first task has been to draw up the general programme for 1973-75 (Council for School Research: Report 1, General programme for the development of school research in 1973-75, School research objectives. Committee report 1972: B 46). This report has two main purposes:

- to try to show what the goals of the general programme for the development of school research are, and
- to which areas, according to the Council, school research should be oriented in 1973-76.

In addition, the report deals with some methodological problems, which have to be solved when defining the limits of the educational research objectives.

2.2 Expenditure

Since the systematic development of research statistics in Finland was begun only a few years ago, there is very little information available on research input and its variations as well as its distribution among different disciplines. According to a special survey made by the Central Statistical Office of Finland, the total expenditure on research and development in 1969 was about 300 million marks, or 0.77 per cent of the gross national product (GNP) at market prices. Social science research accounted for about 8 per cent of the total research input. According to the estimates of the Central Board of Scientific Research (the Academy of Finland), the research input rose to about 400 million marks up to 1972, corresponding to 0.89 per cent of the GNP.

Educational research is financed in many ways, as appears from the above review of the research organisation. It is financed by, e.g. the Academy of Finland through recruiting research personnel and through granting research appropriations. Secondly, it is financed by the Ministry of Education by means of appropriations and through offices and institutions subordinate to the Ministry (e.g., institutions of higher education, the National Board of Education, and the Institute for Educational Research). Thirdly, it is financed by appropriations earmarked for committees and, finally, educational research is pursued without separate additional financing in the administrative and planning units in the educational field as part of their ordinary routine. As educational research in the compiled statistics is under the heading of social science research, it is not possible as yet to give detailed information on the total financing of educational research and development. In 1969, educational and psychological research accounted for only 10 per cent of the total funds devoted to social science research. Presumably the proportional share of educational research, and particularly that of research and development conducted for the purposes of decision-making, in the total research input is increasing.

2.3 Priorities

In the debate concerning the research activities financed by the Academy of Finland, attention has lately been directed towards the fact that research activity is in many cases very casual. There has been no overall direction for research policy, according to which research activity and its financing

could be reasonably steered. Research topics and objectives have remained dependent on the interests and views of private individuals. Although there is no reason for eliminating this factor from research activity, a deliberate effort should however be made to use the limited financial resources consistently and efficiently. This applies especially to research the results of which are of central significance from the point of view of social reform. Educational research is included under this type of research.

A programme for general science policy is being prepared in Finland by the Science Policy Council which was nominated in 1972. A basic programme was presented by the Central Board of Scientific Research in 1972. The Research Council for the Social Sciences, like other research councils, has issued a draft of a research policy programme and a proposal for an extensive multidisciplinary research project.

In the research policy programme of the Research Council for Social Sciences, published in 1971, it is considered that active support should be provided for research in, among other things, the following fields, as far as research into the educational and socialisation process is concerned.

General pedagogics:

- Analysis of objectives:

  Conceptual, theoretical and empirical research into the general objectives and values in education and teaching as well as investigation into the patterns found in the changes of educational values and norms.

- Research into teaching:

  Emphasis should be put on empirical research into teaching. It should not be confined to serving the purposes of certain types of school but aim at finding out general patterns of behavioural change, and thus have a wide scope of application.

Special pedagogics:

- Basic research into the characteristics of anomalous groups and, on the basis of such research, development of teaching methods suitable for anomalous groups.

- Research into the social and educational conditions of anomalous groups, inclusive of research into the prophylaxis of anomaly and post-school care.

Psychology:

- Research into cognitive, emotional and social development.

- Analysis of the learning process and its social, motivational and cognitive premises.

The research policy programme of the Research Council for the Humanities, published in 1971, also emphasises the importance of the fields listed above. It lists the priority fields in pedagogics as follows:

- analyses of objectives
- analysis of the teaching process
- evaluation.

Problems connected with measuring and compiling instruments of measurement in view of the needs of various everyday routines form a varied and important field for research.

- Basic research into educational planning

  Educational research should try to adopt the corresponding approach and techniques of analysis used, e.g. in economics and regional planning in connection with similar problems. These areas are completely new in educational research.

- Language learning and its correlation with various factors.

The research policy programmes of the research councils primarily deal with basic research and its development. Since the whole education system in Finland is in a state of profound change, there is an urgent need for applied research on which solutions can be based. In this area, the responsibility for defining priority fields and research policy in general lies with the Ministry of Education and the offices and institutions subordinate to it as well as with the Council for School Research.

In its draft for a programme for the development of school research in 1973-75 the Council for School Research has divided research activities into (1) research geared to planning and (2) research geared to implementation, i.e. according to the reform stage on which research is concentrated.

The following major research objectives connected with planning are listed in the Council's report:

Pre-school development:

- the development of pre-school learning material,
- experimentation in the training of pre-school teachers,
- permanent pre-school teacher training,
- the administrative realisation of pre-school plans.

Comprehensive school development:

- the development of new curricula,
- the transition to the comprehensive school,
- the development of learning material,
- the training of comprehensive school teachers and other school personnel.

Development of secondary education:

- need for training,
- the organisational and pedagogical structure of secondary school,
- the development of curricula for secondary schools,
- the reform of student evaluation,
- the reform of teacher training

Tertiary education:

- the reform of the student selection system at institutions of higher education,
- the reform of examinations,
- the organisation of the training of different teacher groups.

Research geared to implementation covers research into such reforms as are already being implemented or on which there are official proposals, or even resolutions, available.

In its report, the Council has listed - by levels of education - the reforms that are at the implementation stage, but it has not grouped individual reforms into more comprehensive entities. If we consider the matter from the point of view of various levels of education, we can see that the emphasis of research over the next few years will be on the development of pre-school and secondary education.

The Council for School Research has primarily concentrated on the development of research into primary and secondary education. The planning of research into the system of higher education, and tertiary education in general, is mainly carried out by the Department for Higher Education and Research of the Ministry of Education, where a specific section for the planning of higher education and research was established in 1972. The National Council for Higher Education and its planning section also have a central role in determining research objectives. Since comprehensive reforms are being carried out in the Finnish system of higher education, research into these reforms has increased greatly in the last few years. The National Council for Higher Education is working on a policy on higher education, which, once it is ready, will also affect the determination of research objectives in this field.

The general point can be made, however, that in spite of several years of planning, target-setting in research policy has not become accurate enough in all sectors of research to form a basis for the determining of research objectives. Research objectives in pedagogics are largely determined according to the general objectives of educational policy. It is not possible, for instance, to set medium-term general targets for research before educational policy planning and decision-making are sufficiently advanced. Implementation of research policy programmes on pedagogical research has also been handicapped by the scarcity of resources available for this research in Finland. It can be said in conclusion, however, that planned research objectives are easy to implement in Finland in the fields of the social sciences and pedagogics, because research in these fields is financed primarily from public funds.

2.4 Dissemination of information

The Institute for Educational Research plays a central role in the provision of information on educational research in Finland, since one of its tasks is to provide information about educational research both in Finland and abroad. The tasks of the Institute, in addition to those mentioned on page 52 include in the field of information the following:

- It issues its own series of reports, e.g. in 1972 about 50 pedagogical studies were published in this series.
- It issues an annual list of Finnish literature on pedagogics.
- It issues an annual list of pedagogical investigations completed in Finland, with detailed information on their contents.
- It publishes an annual list of pedagogical investigations currently being prepared, with detailed information on their contents.
- It publishes "The Finnish Journal of Education". This journal is also sponsored by the Finnish Pedagogical Association, the Finnish Pedagogical Society, and the Association for Popular Education. This journal replaces two publications, which were previously published separately.
- It acts as a national co-ordinator for international bodies working in the sphere of educational information and documentation.
- It participates in various ways in the dissemination of information to people other than researchers.

Information work at the Institute is the responsibility of the Department of Information and Documentation. The Institute has a large library, which co-operates closely with the library of the University of Jyväskylä.

In addition to the Institute for Educational Research, other major units of educational research issue their own series of reports. The National Board of Education issues two series of reports, one dealing with experimental educational activities, the other with research connected with educational planning. The Department for Higher Education and Research at the Ministry of Education also launched its own series of publications in 1972. The series includes mainly investigations and other material for the purposes of higher education planning financed by the Ministry. These reports, the publications issued by institutes of education in universities, and State committee reports have been fairly well disseminated among the researchers and decision-makers in the field.

The development of information services in the fields of pedagogics and psychology in Finland was also dealt with in 1972 by the Board of Scientific Information, which considers in its report that it is unnecessary to establish a new organisation for information services in the field of pedagogics. As some tasks connected with information services in these fields are carried out by the library of the University of Jyväskylä and by the Institute for Educational Research, the Board considers that these information services should be assigned to the above units so that they together form an official body responsible for pedagogical and psychological information. The Board arrived at this solution on the basis of experience from other countries, which shows that this type of institution alone is not capable of providing information services, as it lacks a large and versatile supply of sources of information as well as the resources and experience to exploit the sources of information. Libraries alone, on the other hand, would find it difficult to carry out all the tasks connected with information services, as they have not enough experts in different fields and as it is difficult for the library to follow up research and educational planning as closely as would be necessary.

Information on research into school education is disseminated to other researchers, decision-makers and to some extent also to other users through various planning bodies (committees) conferences and other occasions. It is one of the tasks of the Council for School Research to promote co-operation and exchange of information between researchers and decision-makers in the field. The National Board of Education arranges, when necessary, information conferences at which results of completed research are published. The Board also gives information to educational authorities and teachers about completed research at continuation training courses.

2.5 Impact of research on educational development and innovation

The above passages show that now, with reform under way at all levels of education, a major part of pedagogical research is directly linked (in Finland) with decision-making concerning education. Topicality of research and validity of results have a central role in other fields of research, too, and it is emphasised in science policy programmes that theoretical knowledge obtained by means of scientific research should be transferred to applied research, and further, to the benefit of society. The social and technical problems brought to light by this process should show the way for new research and inspire it.

When pedagogical research is closely connected with educational planning and decision-making, the effect of research results on educational development is assured. Researchers then as a rule participate in planning work, and comprehensive research projects are controlled and co-ordinated by expert bodies with representatives from many fields. Proposals to increase the impact of research results on the classroom have been made on several occasions, and it has

been suggested, among other things, that this could be achieved through quicker turnover of researchers, especially those in leading positions; for this purpose, appointments of researchers could be made for a certain number of years. Steps like these would ensure that educational researchers must, or at least can, if they like, have regular assignments in actual teaching and, on the other hand, those in educational or administrative positions can participate in research projects concerning their own field.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The system of educational research in Finland is at the moment in a state of vigorous development. In the near future outline programmes will determine the overall direction for basic educational research, and general science policy will be determined by the programme of the Science Policy Council. In the fields of research directed towards the development of education, there is being developed at the moment a national system of university education research, which will presumably to some extent follow the lines established in school research. The most essential problem in the area of this research activity is to create an overall system within which persons requiring research information (decision-makers, planners, teachers, etc.) and persons assembling the information (researchers) can be brought into close co-operation; a system which allows the information required to be disseminated so efficiently that it influences decisions made in education.

3.2 Intensified European co-operation

The exchange of information and documentation will be one of the main fields of co-operation. Another major area for intensified co-operation will be the exchange and participation of researchers in the conferences and symposiums organised by the international organisations.

As regards the themes of co-operation, Finland refers to the major projects of co-operation agreed upon at the 23rd session of the Council for Cultural Co-operation.

FRANCE

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the French education system which affect the role that educational research plays in it

School education (pre-primary, primary and secondary)

A high degree of centralisation is, of course, the distinctive feature of the French system. At this level, all measures establishing the pattern of syllabi, curricula, time-tables and examinations are the exclusive concern of the government. No changes of any importance can therefore be made to the existing system except by government decision in the form of orders by the Minister of Education or, in certain cases, decrees.

Heads of establishments and district education authorities ("recteurs", "inspecteurs d'académie") are rigorously required to apply the regulations, which are uniform for public establishments throughout the country (1). Moreover, they have at their disposal only staff and funds allocated by the central administration, according to standards that are usually very strict.

Teachers have civil servant status, and their administrative position, duties, promotion, efficiency rating, transfers, etc., are governed by mandatory statutory regulations.

This unvarying "monolithic" aspect of the general organisation of studies and the administration of establishments is very apparent. As regards actual teaching and the role of teachers in the classroom, however, the situation is somewhat different. "Ministerial instructions", which are texts laying down directives for teachers themselves, are usually liberal in spirit and leave teachers a fair amount of scope for adaptation. However, this liberalism is restricted by the fact that teachers are required to keep to curricula whose content is normally very precisely defined. Curricula are so designed as to ensure a linear approach and a rational progression, and they are sometimes criticised for their encyclopaedic nature.

Be that as it may, a deep attachment to a certain degree of independence and to scope for initiative is traditional among teachers in France, and official instructions are designed to allow them to follow their own inclinations within the framework of the general policy. This is particularly true in secondary education, and it was for this reason that it was long considered unnecessary, even inappropriate, for upper secondary school teachers to be given a proper basic teacher training: it was believed that newcomers would soon learn to teach with all the requisite proficiency and authority simply by virtue of practical experience, contact with colleagues and personal meditation.

"Ministerial instructions" do, nevertheless, reflect the ideas of the central authority, particularly those of the General Inspectorate for Education, which plays a very significant part in their preparation. Acting directly under the Minister himself, general inspectors supervise the elaboration and application of all educational measures and are responsible for inspecting secondary school teachers in action and giving them advice. They are also empowered to assess a teacher's performance.

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(1) These regulations also apply to private establishments which have concluded a contract of association with the State.

There are also other types of inspectors - "département" inspectors for primary education, inspectors and chief inspectors for technical and vocational training, and inspectors for youth and sport. These have similar responsibilities but come under a "recteur d'académie" (1) and not directly under the Minister.

Generally speaking, it can be said that teaching in France is done in a context that is both liberal - to the extent that teachers are encouraged to use their own initiative in making their teaching lively, attractive and relevant - and authoritarian - to the extent that teachers have to:

- comply with the requirements of official instructions as regards the contents of curricula, particularly in examination classes;

- submit to supervision by school inspectorates, which may also entail restrictions not so much because of its actual nature as because of the way in which it is exercised.

Higher Education

The 1968 Higher Education Act ("Loi d'orientation") gave considerable autonomy to universities and their "UERs" (teaching and research units), but as far as the content of courses is concerned this autonomy is somewhat restricted because the central authority still lays down the broad lines of the syllabi leading to "State diplomas" which are the most important qualifications for professional purposes. Although the system cannot be described in detail here, it may be said that it does allow establishments scope for adaptation and also a freedom of interpretation which clearly distinguish this sector from that of the school.

For research there is a very considerable degree of freedom, and UERs can arrange their programmes as they wish, according to the amount of money allocated to them. Any restrictions in this field are thus imposed not by law but by practical circumstances.

1.2 Co-operation between researchers and decision-makers

To explain the present situation with regard to this, it is essential to recall various changes that have occurred in attitudes and institutions. These changes are in fact still going on, and although there may be greater awareness of the need for co-operation between researchers and decision-makers the problem cannot yet be regarded as fully resolved.

Opportunities for innovation, involving deviations from the often very precise and constricting regulations, are theoretically very limited. In practice, however, ever since the immediate post-war period a climate conducive to research has been developing amidst a certain empiricism. In spite of rather inflexible regulations, important educational reforms have been undertaken as a result of the determination and combined efforts of Ministry officials, members of education inspectorates and research institutes, university research workers and teachers, whether or not they belong to teachers' movements or associations. The most interesting innovations have not only been tried out but have gradually won the support of the Ministry of Education.

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(1) Translator's note: A person roughly equivalent in rank to a university vice-chancellor who is in charge of an educational district ("académie").

Now, as various statutory texts which will be referred to later are about to come into force, thus placing experimental establishments on an official basis, there are in all some 50 "lycées", lower secondary and primary schools authorised to carry out research. These establishments are conducting experiments involving considerable departures from the general standards; for example, 17 experimental "collèges d'enseignement secondaire" are taking part in a systematic experiment by the "Institut national de Recherche et de Documentation pédagogiques" (INRDP) concerning the division of pupils into groups of equal ability.

The lycées, lower secondary and primary schools just mentioned have been given de facto recognition as experimental establishments by the central administration and, as such, have been allocated extra staff and funds. It should be added that there are a number of other establishments where experiments, in some cases extensive ones, are being carried out, not clandestinely but with more or less tacit permanent authorisation. This is the case with a fair number of primary classes attached to teacher training colleges. The "system" is therefore less hard-and-fast than might at first be supposed.

The "Institut Pédagogique national" (IPN), established in 1954, was given more and more responsibility in the field of educational research. Since 1970 its work in this sphere has been carried on by a department at each of the two bodies which resulted from its transformation, viz. the OFRATEME ("Office français des Techniques modernes d'Education") and the INRDP.

Lastly, in the universities, the number of persons involved in individual or joint educational research has increased consistently since the war, and according to an official document there were three hundred research centres in 1968.

The results of all this research and experimentation have been permeating general educational policy only gradually. The earliest experiments (Ecole Decroly, Ecole Freinet) developed clandestinely as it were, and for a long time their continuation was in jeopardy owing to opposition. Subsequently, too, the experimental establishments and research bodies, even those which had been officially recognised and authorised, were clearly considered by some authorities as inevitable exceptions, a concession to the reform "fashion". The need for a research policy as part of national educational policy came to be accepted only gradually, mainly under the pressure of events which revealed the inadequacies of the educational system.

Some specific examples of reforms will be given later, in the answer to question 1.4. Here, we shall simply explain what form official or de facto co-operation between research workers and decision-makers takes or seems likely to take.

"Power of decision", in its broadest sense, is exercised by:

- parliament (enactment of legislation);

- the government, in particular the Minister of Education (issue of regulations). Decisions at other levels are always taken by virtue of a delegation of ministerial authority. In the case of higher education and research establishments the authority thus delegated is fairly broad. In other cases, it is confined to administrative matters.

(a) Legislation

As far as we know there is only one statutory provision concerning educational research, viz. section 5 of Act No. 71-400, dated 1 June 1971. This reads as follows: "Educational experiments may be conducted in public or private establishments by way of an exception in accordance with such conditions as may be laid down by decree".

This laconicism (1) does not mean that parliament is not interested in the sector of activity under consideration. Indeed, in every annual budget debate the Minister of Education is pressed for details of current and planned research. He also answers written or oral questions which senators or deputies put to him in accordance with the Constitution.

(b) Regulations

Central administration by the Ministry

A Decree and Order dated 19 March and 14 May 1970 respectively led to a radical reorganisation of the system of central administration by the Ministry of Education. Directorates concerned with objectives and others concerned with resources were set up. In the case of educational research a "chargé de mission" is responsible for objectives. This senior official is in constant touch with those of his colleagues who sit with him on the "Ministerial Council on Educational Research" set up under the Minister.

The directors responsible for objectives, together with "chargés de mission", determine future projects for incorporation in a programme that is adopted by the Minister and subsequently kept up to date. For the benefit of the directorates in charge of resources, they issue the general instructions needed to enable the projects to be carried out.

The resources directors are responsible for the implementation of the programme adopted by the Minister and for general spending and staff deployment policy.

In this system, the Forward Planning Directorate has an important place. This is a "piloting" body which is responsible for making forecasting studies of a financial and general nature and also exercises weighty,responsibilities regarding programming and planning. However the Ministry of Education has been further reorganised by a decree dated 21 May 1973. This reform combined within a single Objectives Directorate:

- the three directorates previously concerned with objectives in primary and secondary education, in higher education and in further training,
- the Forward Planning Directorate,
- the Statistics and Economic Surveys Department,
- the Educational Research Department.

The Objectives Director is directly responsible to the Minister. He must keep abreast of the main problems of the educational system, prepare general forward planning programmes, set before the Minister the principal alternative proposals for major reforms, and calculate their cost. He also directs the implementation of general administrative programmes. For this purpose he makes use of all available data, including those provided by the "chargé de mission" for educational research. He also frames educational research policy, in as much as it is one of the factors which determines general educational policy objectives. He co-ordinates research and experimental programmes for all types of education, supervises their implementation and decides what action to take on the results.

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(1) From the legal standpoint, section 5 of the Act of 1 June 1971 provides an adequate statutory basis for drawing up a coherent set of regulations governing educational research.

What role does research play in the work of the central administration ? As a result of the 1970 reorganisation, educational research became for the first time a specific activity. Previously the need for research was undoubtedly felt, but only marginally, as those responsible seemed to consider that research would not be of much use to them in matters requiring immediate action.

Research now has a place in the programmes drawn up by the directors. A three-year "strategic plan" was prepared covering all the Ministry's departments; research is well represented in it and indeed can be seen as a coherent element in educational policy as a whole, with regard both to objectives and to resources.

Several other recent measures will result in enhancement of research's role and potential value. Since they will be returned to later in this report, we shall refer to them only briefly here:

- the reform of the main institutes (the INRDP and the OFRATEME) which, while guaranteeing them the necessary independence, brings them into direct association with the activities of the Ministry by entrusting them with the execution of research programmes of national importance;

- the authorising of directors to conclude research contracts with universities and offer them incentives by selectively subsidising certain research projects;

- the drawing up of an official statute for experimental establishments (decree and order of 12 June 1972), which is the school education research "charter" and will enable regulations to be adjusted to facilitate experiments as provided for in the previously mentioned section 5 of the Act of 1 June 1971.

  (It is important to note that this is the first time that official provision has been made to enable common standards concerning curricula, methods, time-tables, general organisation and even examinations to be departed from for experimental purposes.)

Advisory bodies

There are bodies (Higher Council for National Education, Council for General and Technical Education) which the Minister is statutorily required to consult before taking major decisions. They comprise not only members of the central administration but also representatives of the "recteurs", teachers' associations, private education, etc. They are thus broadly based.

When consulting them, the Minister provides them with technical studies, and for the preparation of these studies research workers may of course be asked for assistance. In addition, teachers who are or have been involved in research work themselves sit on the advisory councils.

Ministerial committees on educational reform

These are unofficial committees of experts which have been closely associated with the preparation of recent and forthcoming reforms. One of them is more particularly concerned with the general problems of school life. The others are specialist committees, dealing respectively with the teaching of mathematics (Lichnerowitz Committee), French (Pierre Emmanuel Committee) and experimental sciences (Lagarrigue Committee).

Unlike the official advisory bodies, which express their views on proposals which have already been drawn up, these committees, which comprise experts from various fields, are called upon to produce substantive reports which the Minister transmits to his departments for use as technical working papers and which serve as a direct basis for the administration's decisions.

These committees, which provide an opportunity to pool experience and ideas, have come to appreciate the need for research as a support for their deliberations; they consequently keep in even closer touch with teams of research workers. For instance, when the Lagarrigue Committee was recently set up, it immediately arranged for a research group of university and secondary school teachers to carry out a programme of experiments it had itself drawn up.

Specialised educational research bodies

These bodies are supervised by the Ministry but have a fair measure of freedom in drawing up and carrying out their research programmes. Their budgets, however, are greatly dependent on grants from the central administration.

Since these research bodies are well known, we may simply list them. They are:

- the "Institut national de Recherche et de Documentation pédagogiques",
- The "Office français de Techniques modernes d'Education",
- The "Centre international d'Etudes pédagogiques" at Sèvres,
- the specialised departments of the "Ecole normale supérieure" at St. Cloud,
- the "Bureau pour l'Enseignement de la Langue et de la Civilisation",
- the "Institut national d'Orientation professionnelle",
- the "Institut national pour la Formation des Adultes",
- and the various research institutes for mathematics teaching (of which there are at present thirteen, though it is intended to set up one for each educational district "académie").

Specialised educational research institutes have special responsibilities for "major" projects, referred to officially as "programmed research of a national character". Their work combines fundamental and applied research and their teams consist of university research workers and teachers. They also have special access to the school sphere for experimental purposes and exercise special responsibilities in the field of teacher training and educational methodology. A number of practising teachers are associated with the institutes' research, appropriate adjustments being made to their professional duties.

Higher education and research establishments

These establishments draw up their own research programmes, both in the educational field and elsewhere. Their fundamental research will often lead on to applied research involving experimentation in primary or secondary schools, and as a result, with the approval of the relevant authorities, they will set up joint teams which include primary and secondary school teachers. In such cases the work of the establishment concerned is obviously closely akin to that of the specialised research institutes.

The Ministry's departments, as well as specialised bodies and training establishments, commission universities to carry out studies and research that will be of direct use to them. This kind of co-operation is now well established in such fields as linguistics (teaching of French), mathematics and the physical sciences. These projects are governed by contracts accompanied, where necessary, by financial support.

Similarly, the "Centre national de la Recherche scientifique" (CNRS, a public body under the Ministry of Education, responsible for the general co-ordination of scientific research in France) subsidises university research carried out as part of "programmed thematic projects" selected by it.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

In France the words "development at the local level" do not mean the same thing as in countries where education is decentralised. Except in the case of universities, there are no official channels which enable radical changes to be made to the educational system from the "grass roots".

The problem of co-operation between teachers, researchers, administrators and parents is considered to be one of paramount importance for the advancement of educational research.

The first point is that links are fairly easily established between persons working in the various sectors of education and officials in the various departments of the Ministry of Education, since their sense of belonging to the same "line of business" is perhaps stronger than elsewhere. There have, in fact, always been exchanges between teachers and researchers. The aim now is to intensify and systematise them. This involves:

- bringing "spontaneous" research by teachers out of its isolation and turning it to account;

- setting up teams comprising both teachers and research workers to carry out joint research programmes;

- increasing teachers' opportunities for in-service training and retraining.

"Spontaneous" Research

Innovatory ideas have often come from teachers themselves. They, more than anyone, are aware of the shortcomings of existing methods and structures and the needs of young people. Often in the course of their daily experience they will, more or less intuitively, discover solutions to the problems with which they are familiar.

These efforts by the teaching profession, which have been given the name of "spontaneous research", may be made either by individual teachers or by various bodies - teachers' movements, specialist societies (association of teachers of mathematics, French, modern languages, etc.) and teachers' trade unions.

Spontaneous research requires official authorisation, which is given after consultation with those responsible for supervising the educational system (general inspectors, primary inspectors, technical education inspectors, etc.). Until recently, this authorisation was a matter for the central authorities, but a circular dated 1 December 1971 made two interesting innovations:

- first, it is now the "recteurs" themselves who examine proposals, authorise research if they think fit and allocate the necessary resources. They also supervise research in company with inspectorate officials, keeping the Minister informed of results;

- secondly, the "recteurs" are asked to promote educational research which is "both decentralised and co-ordinated at educational district level". For this purpose it is suggested that they set up "research boards" composed of research workers, teacher training staff and practising teachers. In more general terms, the objective is to draw up and put into effect regional programmes in which "spontaneous" research projects can be incorporated. These projects, as experience has shown, gain nothing from remaining in isolation, and it is greatly hoped that the new system will make it possible to create or improve a climate favourable to the development of a genuine spirit of research, which above all implies a spirit of co-operation.

Measures to develop co-operation between researchers and teachers

In the case of major research projects, no matter who their sponsors may be (specialised institute, training establishment, ministry, "recteur"), the Decree and Order of 12 June 1972 lay down a number of measures designed to ensure that they produce optimum results by enabling them to be carried out in the most favourable conditions possible.

Both texts clearly establish the principle of organic co-operation between research workers and teachers in "fully experimental schools" or the experimental classes of "partially experimental schools" (1). The form of the co-operation has to be stipulated by contract.

It has therefore been officially recognised that team work is essential for projects of any size, as this is the only way to enable them to be conducted on a sound scientific basis and be properly evaluated.

Generally speaking, parents' associations play a fairly minor role, and their attitudes towards educational experiments vary. This is an area where more extensive information and consultation is required.

"Fully experimental establishments" are to have advisory boards ("conseils de perfectionnement") comprising representatives of teachers, research workers, the administration, parents and pupils which will be consulted on the organisation of research and experiments.

In-service training for teachers

Educational research is benefiting from the opportunities for contact provided by the establishment of UERs specifically concerned with educational studies (for which many teachers enrol) and by the courses run by several universities to enable teachers to keep abreast of developments in linguistics, mathematics, psychology, etc.

Another important contribution is made to in-service training by the courses referred to in point 1.7 below.

1.4 Contribution of research to reform in the classroom

The place occupied by educational research in decision-making over the last twenty years seems very small if judged solely by administrative criteria. For example, whereas the large-scale reorganisation of the education system between 1945 and 1970 - the main aspects of which were of course the 1959 reform of school education and the 1968 Higher Education Act - led to the publication of a great many regulations, research problems have been made the subject of only three or four fairly minor circulars, and the funds specifically allocated to research have been very slender. But this apparent neglect is deceptive. In fact, the authorities have always made a point of being receptive to new ideas and taking heed of research activities, and representatives of the educational "avant-garde" have been included in the different advisory bodies, especially the ministerial committees on educational reform. Moreover, the Ministry's senior officials include able academics and teachers who have themselves been research workers and innovators, and in this context mention should be made of the very active role which the General Inspectorate plays in maintaining a link between research and administration.

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(1) "Fully experimental schools", of which there will be few, will be responsible for carrying out large-scale experiments. More limited experiments will be conducted in experimental classes, of which there will be a considerable number..

Thus, although there may not have been any functional integration, there has always been a common spirit, a kind of osmosis, which should be clearly stressed. Research considerations have never been absent from decision-making: to be precise, they have formed a general background.

It is, however, a fact that several important reforms were carried out without any preliminary research, in the sense of scientific experimentation and evaluation followed by properly supervised implementation. All that was done was to conduct tests in a number of pilot establishments and then rapidly apply the findings on a general scale. The implementation of these reforms was, of course, very closely followed by the General Inspectorate and by institutes for research into the teaching of mathematics, etc., which suggested such adjustments as were necessary. The reforms were also accompanied by intensive efforts regarding the retraining and refresher training of teachers.

It was probably impossible to do otherwise: because of the urgency of the decisions that were required to deal with the "school population explosion" and ensure greater democracy in education, there was virtually no possibility of holding up reforms to allow systematic preliminary studies and research to be carried out.

This was true of the reform of primary education (introduction of subjects of a less basic kind as a means of stimulating interest), the reform of mathematics teaching in lower and upper secondary schools, the introduction of technology in the third and fourth years of secondary education, the reform of history and geography teaching in lower secondary education, and the introduction of practical subjects in lower short cycle secondary education.

The results of what has been done are by no means negative. Nevertheless, certain difficulties might have been avoided if a different approach had been followed. There is now a clear inclination on the part of ministry officials to call for much more thorough experimentation and systematic evaluation before the remaining reforms (teaching of French and experimental sciences, reorganisation of upper secondary education) are introduced. The measures so far taken, with regard both to establishments and resources, show a clear determination to translate words into deeds in this matter.

1.5 Main obstacles to a greater impact of research on the classroom

The relationship between educational research and general educational policy is a complex and sometimes difficult one, for several reasons:

- There are many aspects to educational research, because it covers a wide and shifting area of investigation and knowledge (educational problems and societies evolve together). More often than not those responsible for educational policy do not expect research to provide immediate solutions to the urgent problems with which they are faced. They do not underestimate its intellectual and scientific validity and yet, even while encouraging it, they tend to regard it as a marginal activity. The situation is therefore quite different from, for example, that in the field of public health where the conclusion of a research project is regarded as a necessary and adequate condition for a given state of affairs to be promptly changed.

- Educational research is a new activity, which arrived rather belatedly, in a system which has a coherence and dynamism of its own to which it tends to cling. Since it gives rise to radical changes, it inevitably meets with a lack of response and actual resistance, not only from the system itself but also from the persons - particularly teachers - whose practices it is proposed changing, sometimes fundamentally. This resistance may well spring from a quite honourable attitude, such as a reluctance to conduct experiments at the possible expense of the pupils themselves.

There are, however, other factors which operate in the opposite direction, seemingly in an increasingly perceptible manner:

- After a period of growth and reorganisation, the main problems arising are of a qualitative kind. But in this field the factors are complex, and situations can be charted only by means of scientific studies.

- Qualitative improvements in education generally involve increased costs, and a growing need can be seen for preliminary research and experimentation so that it may be possible not only for a reform to be undertaken with the greatest chance of success but also for its financial implications to be accurately estimated, (extra expenditure, as well as savings through improvement of the educational system's efficiency - e.g. a lower rate of children who have to go through the same class twice).

We should like to stress the importance of this aspect of things in a centralised system, where a reform, however limited, is applied on a nation-wide scale and thus has immediate and very marked effects on staff recruitment, running costs and so on.

There is thus a certain disharmony between the attitude of research workers to whom such factors as time and cost are somewhat alien, and the often constrictive considerations to which those responsible for educational policy pay heed.

The fact is that both sides must get to know and understand each other and learn to work together. Balanced co-operation implies that the government should turn more and more spontaneously to research and give it a say in policy-making. At the same time, distinctions might be made between the activities of the various research bodies so that the latter could, according to requirements, act:

- either in the same way as industrial research departments, i.e. with an eye to profitability in the immediate or very near future. In that event they would be asked to carry out not research in the scientific sense but tests to help the government to implement very rapidly a reform that could not be delayed. This might be the case, for instance, with certain measures urgently needed in secondary education.

- or as true research institutes, with maximum freedom from outside pressures. The government and the research body would thus be bound by a formal or tacit "contract" under which the latter would be guaranteed the necessary facilities and the former would be informed how soon it would receive the information and findings it needed.

There would seem no doubt that both sides would benefit greatly.

Although a start has been made on the integration of research with educational organisation and reform, there are still a number of important problems to be solved before the process is fully completed. In our opinion, these problems may be summed up as a need to arouse and develop a genuine spirit of research; in other words, to create an awareness of research's possibilities, limitations and implications amongst:

- teachers, whose attitudes are all too often imbued with emotion (an excessive confidence in the possibility of finding "miracle solutions", or, on the contrary, an instinctive suspiciousness towards anything which might undermine values that are considered immutable);

- those responsible for working out the substance of reforms (e.g. by inducing them to reconcile their views as specialists in a particular subject with the requirements of education as a whole);

- politicians and administrators;

- the public, whose reactions to research problems are generally highly subjective.

From this standpoint a matter of primary importance is undoubtedly that of providing parents with information.

1.6 Researchers and educational experiments

On this subject, reference should be made to the answer to question 1.3 above, as a researcher's part in the design and evaluation of an experiment is generally determined by the extent to which he helps to carry it out.

There are in fact many degrees of co-operation. For instance, in the case of the research being done into the division of lower secondary pupils into groups of equal ability, the experiments and instruments of evaluation were designed by the INRDP, which is responsible for the scientific supervision of the operation. Teachers have been widely associated with the project, through numerous courses and seminars, but use has also been made of practising psychologists and researchers in that field, linguists, etc. By contrast, various important and extensive "spontaneous" experiments are conducted with fairly little scientific backing. Needless to say, in such instances the organisers are urged to remedy this state of affairs by securing the appropriate assistance.

It is generally agreed that any experiment of any size should be properly monitored and evaluated, and that it is probably preferable to postpone one if the requisite resources are not all available. From this standpoint the French system of budgetary forecasting and organisation should make for fairly rigorous planning.

As regards the general application of the results of experiments, it is mainly the General Inspectorate and other inspectorates that are responsible for keeping the progress and the effects of reforms under review. The participation of research workers in this task is not of course precluded : a case in point is the field of mathematics teaching, where in the Instituts de Recherche sur l'Enseignement des Mathématiques (university institutes of research into the teaching of mathematics) co-operate closely with the General Inspectorate in regard to the training of teachers and the monitoring of the effectiveness of innovations.

1.7 Familiarisation of student and practising teachers with educational research

Greater provision would, of course, be desirable in this regard. However, various arrangements do exist for this purpose, in the form of:

- The publications of the INRDP (the widely distributed journal "L'Education" and the "Revue Française de Pédagogie") and of the OFRATEME (the journal "Media").

- Certain radio and television broadcasts of the "Radio-Télévision Scolaire", which comes under the OFRATEME.

- The activities of the regional teaching resources centres (CRDPs), under the INRDP, which do a considerable amount of information work.

- Fairly frequent short courses organised either at educational district level or at national level (by, for instance, the Centre International d'Etudes Pédagogiques at Sèvres, or the INRDP).

- Several long courses (lasting a school year) such as the audio-visual course run by the Ecole Normale Supérieure at Saint-Cloud or the national course on data-processing.

As regards student teachers, the courses of teacher training schools and centres provide an introduction to research problems and techniques. This is another area where greater provision will need to be made when the new establishments responsible for initial teacher training are established.

1.8 Rationalisation and cost-saving through research

The more refined and costly educational techniques are, the less appropriate an empirical approach is. A recent survey has shown, for instance, that French educational establishments possess a considerable amount of audio-visual equipment but that the equipment is inadequately used: this stems from teachers not being trained for the purpose, owing to the fact that the problem of familiarising them with these new techniques and arousing their interest in them has not been properly studied. When facilities of a much more complex kind come into use (teaching machines, etc.), it will be quite inconceivable that this task of retraining teachers should be treated as a fairly secondary one or left to the efforts of teachers directly affected.

Moreover, foreseeable developments in the educational field are so far-reaching that they call for a concerted strategy. It is no longer possible to rely altogether on teachers' own expertise and skills. The switch from "lecturing" to more individual tuition, for example, will have such a revolutionary effect that, unless it is prepared carefully, objectively and calmly, serious confusion will arise, grave harm may be done and large sums of money may be wasted.

These ideas are gradually gaining ground but it has to be recognised that research has so far done little to rationalise and reduce the cost of education. There is even no doubt a fairly widespread belief that most innovations ultimately lead to greater expenditure; this may be true in the short term but wrong in the medium term to the extent that reforms improve the efficiency of the educational system.

This problem is now being given attention by the authorities, and efforts are being made to include cost/benefit studies in major research programmes. For instance a careful assessment will be made of the financial implications of the general application of the results of the experiments to be carried out with a view to the reform of upper secondary education. This will also be done in the case of research into the use of the units/credits system in technical and vocational education.

Accordingly the Ministry's Forward Planning Directorate is playing an increasing part in the planning and monitoring of research.

1.9 The role of educational research at post-secondary level

The autonomy of higher education establishments allows them to organise experimental courses. It may be noted that three universities (Dauphine and Vincennes in Paris; and Marseille-Luminy) were founded as experimental ones. See also in 2.3 Priorities, the section on higher education.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

This question is answered at length throughout the first part of the report.

2.2 Expenditure

It is difficult to say exactly how much money is specifically allocated to educational research, since the people who do it frequently pursue other activities at the same time, in the

same way that the organisations involved often have other responsibilities, for example pupil admissions, teacher training, general scientific research, etc.

However, a fairly detailed study has been made of the 1973 financial year and forecasts have been made for 1974 in the form of a programme budget. The following overall figures emerge:

1973	
Total state budget for education	35,400,000,000 F
Sums allotted for specific educational research projects	89,200,000 F
Percentage	0.2 %
1974 (forecasts)	
Total state budget for education	40,600,000,000 F
Sums allotted for specific educational research projects	94,000,000 F
Percentage	0.2 %

One very important point must be made about these figures: they only cover first, research projects in the strict sense of the word, and second, projects producing learning materials for teachers. They include neither general measures taken to improve education nor teacher training, which are covered by the general operational budget (e.g., modernisation of school buildings, reduction of the teacher-pupil ratio etc.).

The sum of 89,200,000 F for the 1973 financial year was divided among the following needs:

Research and experiments in primary and secondary schools	11,800,000 F
Budget for the specialised institutes (INRDP etc.)	69,900,000 F
Research and experiments in higher education	7,500,000 F
TOTAL	89,200,000 F

2.3 Priorities

The highly centralised nature of the French educational system obviously simplifies the selection and implementation of priority research projects and their financing.

Please see the first part of the report for the roles of the various bodies which decide priorities.

Pre-school education

In simplified terms there is one policy choice to be made here: should the purpose of nursery schools be child-minding or early education? More and more specialists are coming to believe that education should begin as soon as possible in order to compensate for social and cultural handicaps.

While it is probable that research in this field will become particularly important over the next 5 years, it is at present still in its early stages and it is unlikely that further resources can be allocated for this sector in 1974.

Projects at the moment are being carried out mainly by the INRDP and an associated body, the Centre de Recherche et d'Etudes sur l'Adaptation Scolaire (CRESAS).

The INRDP is making a particular study of the following:

- organisational questions (continuity between nursery and primary education): 3 schools (St-Fons, Evry and St-Quentin) have been selected for experiments.

- educational questions as such, considered as a whole (since at this stage, the study of the development of the child's personality, his motor functions, conceptualisation and creativity takes precedence over research into specific fields). About 50 nursery schools and 20 teacher training colleges are connected with these research projects.

Primary education

Two fields of research have priority:

- structures

- education for the children of migrant workers.

Concerning the structure of the primary school, an extensive research programme was begun in 1970 by the INRDP. It will continue at least until 1977, but the initial results will be available by the end of the 1974-75 school year. This research aims by a forward-looking approach, to identify the basic educational choices which might, depending on circumstances, have to be made to enable primary school to adapt itself to new tasks.

The hypotheses put forward suggest a radical reorganisation, among whose features would be:

- Division of primary education into 2 stages, the first comprising the first three years of primary school, linked in a cohesive pedagogical unit and connected with the nursery school; and the second, the two subsequent 'intermediate' classes.

- Individualised teaching: this calls for the formation of equal ability groups for some subjects. Not the least difficulty is of course to prevent this leading to an organised segregation of the gifted from the less gifted children, and the system must be very flexible.

- New concepts of the role and work of teachers.

A major objective is to maintain teacher continuity; thus the teacher would stay with his pupils for at least two years (particularly in the older children's section of the nursery school and in the first year of primary school). On the other hand, the problem of all-round knowledge arises in the upper primary classes, where the level required of teachers in French and mathematics makes some degree of specialisation almost inevitable. The natural solution to this is a team of teachers jointly responsible for each class, with all the consultation and co-ordination that this would entail to ensure the right psychological climate for pupils.

Preliminary experiments with these new structures are in progress. The 40 establishments involved are mainly schools attached to teacher training colleges for practice purposes.

Regarding the education of migrant workers' children an agreement with the Portuguese government now entitles children of Portuguese migrant workers to be taught their mother-tongue within the French school system.

Lower secondary education

Priority subjects for research are:

- increasing equality of opportunity, in particular by replacing the present necessarily rigid "streams" by more flexible structures (ability groups) and establishing support teaching for disadvantaged children (structural reforms),

- the promotion of modern teaching methods (especially audio-visual).

On structures, the INRDP has been carrying out since 1967 an extensive research programme on the organisation and working of lower secondary schools with differentiated teaching groups (equal ability groups). This programme is a controlled experiment being carried out on a significant sample of 19 experimental Collèges d'Enseignement Secondaire (CES), with a control group of 15 other CES.

In 1972-73 the second year classes were assessed. The third year will be assessed in 1973-74 and the fourth year in 1974-75. Complete processing of the results will then require two years but partial conclusions will be available earlier.

A large number of "spontaneous" research projects (supervised by the directors of educational districts) also relate to the general theme of ability groups, remedial teaching and co-ordination of disciplines - this theme springing from the desire to compensate for handicaps by taking all steps to bring out each pupil's talents. The recteurs have given permission for research of this type to be carried out in 191 experimental schools for the academic year 1972-73. The number of these experiments proves that this is an area in which the need for change is felt particularly sharply.

Concerning educational technology (audio-visual teaching), the major experiments in the field of audio-visual teaching have been those carried out at the lower secondary level. The method is seen as a means of making it easier for ability to emerge, and thus of reducing inequality of opportunity.

Various types of project are in progress:

- some, such as that being carried out at the "Louis Lumière" lower secondary school (CES) at Marly-le-Roi, require a large number of staff and extensive equipment, involving considerable expense;

- on the other hand, a large number of schools employ simple apparatus which can be readily used in traditional teaching methods;

- in between these two, a number of CES are carrying out less extensive experiments than that at Marly-le-Roi, but they too are making considerable alterations to the teaching process. This is the case at the Isle-Adam and Montignac-sur-Vézère schools for example, which are using relatively expensive equipment but require little additional staff;

- finally, specialist bodies (in particular OFRATEME) are carrying out fundamental and applied research on the processes by which knowledge is acquired through various media, e.g. the I.C.A.V. experiment (on "initiation into the content of audio-visual messages") being performed in about 20 schools in the Bordeaux education district.

No clear conclusions can yet be drawn from all this experimental work. While the purely technical problems have now been effectively overcome, this cannot be said of the problem of integrating these aids into the teaching process. It is not yet known exactly how and to what extent audio-visual resources, still less "teaching machines" and computers, can improve the acquisition and transfer of knowledge, since the key to the change-over from traditional teaching methods to these "media" is not completely understood. It seems nonetheless inevitable that educational technology will come into general use, for various reasons:

- the attraction for the child of modern techniques and the need for education to be as uncloistered and as lively as the "parallel school" of the outside world,

- the development of self-teaching, which relies heavily on audio-visual and other "messages" from which the child himself builds up his knowledge,

- the savings that can be made in some cases by using these methods.

These are the problems that we wish to examine in particular during the 1973-74 school year. Definition of an audio-visual teaching method and assessment of its cost and returns are now priority research objectives.

Long upper secondary education

Priority areas for research:

- new structures

- independent work and new methods.

The Ministry of Education decided to study during the academic year 1971-72 a reform of upper secondary education with the following aims:

- to remove the over-strict partitioning and to replace it with more flexible "lines" based on a system of options in the literary, scientific, technical and artistic disciplines; to delay final scientific, technical or literary specialisation until the end of the first year of the upper secondary course;

- to draw literary and scientific subjects together by increasing the amount of science teaching in the literary lines and the number of possible combinations of options. (It is useful to remember that analysis of the baccalauréat examinations taken each year shows that there is still a preponderance of pupils studying literary subjects, often for no good reasons);

- to bring technical subjects and general education closer together, especially the general and technical lines in the first year of the upper secondary course;

- to develop individual study;

- to bring teaching in all subjects up to date, especially by introducing the study of current world problems as a major subject.

This reorganisation will be carried out in stages, but as quickly as possible. The new structures have been tested experimentally in 1972-73 in the first year intake of four schools. In 1973-74 this will be extended to the second year in the same schools while "new" first year classes will begin in 13 other schools. In this way it is hoped that the reform will become general practice in the first year of upper secondary schools in 1973-74.

Experiments in independent study and new work methods have been commissioned by the Ministry; these differ depending on their location and involve various disciplines. The INRDP has been made responsible for general co-ordination and will draw its conclusions on the basis of a rapid overall assessment.

Twenty-three schools have been involved in this operation in 1972-73. It is planned to extend it in 1973-74 to twenty or twenty-three new schools in order to obtain a significant sample. The aim is to develop working methods which give pupils greater responsibility for their own education; individual study or work in teams on subjects chosen by the pupils themselves; personal projects giving scope for creativity; research in an inter-disciplinary field, etc.

Short upper secondary education

Priority areas for research:

- efficiency of vocational education

- general educational reform in preparation for continued training.

N.B. research on general education also concerns the technical secondary schools, a number of which are directly involved in this research as sample schools.

The INRDP and the CRPET (Centre de Recherche pédagogique de l'Enseignement technique, a body directly responsible to the General Inspectorate) are carrying out a research programme on the efficiency of vocational education mainly concerning the following points.

- The use of machine tools in training; the analysis of teaching situations and transfer of general technological knowledge through the use of equipment.

- The use of simulation methods; these would appear to have considerable advantages since they avoid the necessity of spending large sums of money on delicate and quickly obsolete machine tools. This experiment has now begun on the initiative of the INRDP (at the technical lycée in Créteil) and the OFRATEME (construction of a simulator for the training of motor mechanics; research into the use of data processing with simulation in the teaching of physics).

- Reform of course content, with the aim of making pupils more adaptable to variations in the labour market.

Regarding the general reforms in education connected with continued training, two important operations began in 1972-73. The first of these is the creation of the Technical Education Centre at Etang de Berre (the CETEB) and of the experimental technical secondary school at Istres. The aim of the CETEB is to set up an establishment in the industrial zone of Fos-sur-Mer to meet all school and adult vocational training requirements, the two levels being combined to a considerable extent, in the spirit of permanent education. The Collège d'Enseignement technique at Istres is the first part of this educational complex.

The main features of the teaching method chosen are:

- application of the continuous assessment system, which makes it possible to teach at different speeds and puts the adolescent in a permanent education situation as soon as he reaches the school;

- self-instruction, an essential method of acquiring self-discipline;

- systematic use of "media", designed not merely as aids or illustrations for the traditional lecture but as the source-material on which knowledge is built; self-instruction and "multi-media" teaching change the role of the teacher considerably. He is no longer there to impart his knowledge but to help the pupil to educate himself. Hence the "resources room" and the tutorial assume major importance.

The Istres school will also become a centre for producing teaching aids designed by the teaching staff at the establishment but suitable for general use. This aspect is obviously very important from the point of view of return on the investment.

The second of these important projects is the "continuous assessment" operation in 12 experimental technical schools. This project too has been commissioned by the Ministry and is not unlike the Istres technical school project in that its primary objective is the establishment of a continuous assessment system leading to the award of diplomas on the basis of credits. However, it is less ambitious and more empirical in its reform of course content, although obviously no judgement can yet be made of its development.

The teachers at 12 technical schools in 4 educational districts have volunteered to work out together in 1972-73 unit/credit systems for the various diploma subjects. They were given a considerable amount of help by the inspectorate. This process, of course, involved them in asking often very fundamental questions about methods and content: the concepts of ability groups and remedial teaching were inevitably discussed. The necessity for serious assessment, even at an elementary stage, was also strongly felt. The INRDP is now associated with this aspect of the project.

Experiments "in the field" have also been carried out and special arrangements were made for the award of diplomas as from the 1973 session.

The first results from this project are encouraging. It has been well received by pupils and teachers and well co-ordinated at the national level and has covered a significant sample of establishments.

Higher education

The Ministry is in a position, by means of specific grants, to encourage higher education establishments to direct their educational research towards what it considers to be priority areas.

This policy has allowed university teams to take part in projects concerning primary and secondary school education. It has also been used successfully to encourage universities to act together to reform teaching methods in higher education. For example 12 teaching and research units are at present taking part in an experiment with a particular type of teaching machine, co-ordination and assessment of the experiment being carried out by OFRATEME.

2.4 Dissemination of information

The INRDP publishes several journals dealing with educational questions, which are widely distributed to educational establishments:

- the journal "L'Education"

- the bibliographical journal "Les Livres"

- the "Textes et Documents pour la Classe" (teaching materials).

This means that general information of high quality, although in a fairly concise form, is available on the developments in and results of educational research in France and abroad. The more specialised "Revue Française de Pédagogie" often deals with research problems.

Finally, the INRDP publishes regular technical information bulletins for the use of teachers taking part in its experimental projects.

The OFRATEME publishes the journal "Media" which contains accounts of experiments and research carried out on the use of modern educational facilities.

In the regions and départements, the Teaching Resources Centres (Centres de documentation pédagogique) distribute the INRDP and the OFRATEME publications. Other journals are published by the various educational associations and teachers' societies and unions. One of the most highly valued is the "Cahiers Pédagogiques".

2.5 Impact of research on educational development and innovation

No fuller information can be given than that contained in the first part of the report. In fact, the question of the impact of research can hardly be asked in France, or at any rate is felt to be less than urgent given that its existence in a properly organised form is so new.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

At present no change in research policy is envisaged, apart from improving the effectiveness of the policy described throughout this report. This situation, of course, is not likely to remain unchanged for long.

3.2 Intensified European co-operation

No information.

FEDERAL REPUBLIC OF GERMANY

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Federal Republic's education system which affect the role that educational research plays in it

The traditional education system in the Länder (States) of the Federal Republic of Germany is basically neo-classical, its principles stemming from a philosophical-speculative orientation rather than from empirical research. This is reflected in the long-standing concepts of "volkstümliche Bildung", i.e. a kind of elementary education with a strong emotional and parochial bias, on the one hand, and of academic scientific education on the other, which are both still to be found in the so-called "Tützing" catalogue of requirements for the Abitur (higher school certificate, the qualification for university education). Education was regarded as part of the organic development of the individual. The schools were regarded as institutions serving to further this development process by means of teaching which directed and guided growth; teaching centred on the nature of man and whether his need was for directed guidance or free development. Consequently, educational research was also oriented towards these fundamental questions. Researchers dealt with either historical aspects or with experiments in the form of systematic surveys of educational problems on an anthropological-philosophical basis. At the turn of the century, however, there was a so-called "empiristic" trend which led to experimental education, the aim of which was to establish the optimum conditions for teaching and learning on the basis of psychological, methodological and organisational experiments. In addition, medical research on the mental and physical anomalies of children became an acknowledged element of educational research towards the end of the 19th century.

None of these innovations, however, began to have any real influence on the development of the educational system in Germany until well after the end of the second world war. Today they form the very nucleus of educational research, which is mainly understood as research in the sense of "experimental education" as defined above. As a result the philosophical and the historical aspects have tended to recede into the background.

In dealing with an educational system which is based essentially on philosophical-speculative principles, modern educational research has become the starting-point for criticism and the demand for change. Thus in the Federal Republic of Germany the reappraisal of "talent" and intelligence, and research on the influence of the environment on the ability to learn, the pupil's performance and the needs of society, on the educational gap between urban and rural areas and on the participation of the socially less privileged in the process of further education, etc., have merged into a demand for fundamental educational reform.

1.2 Co-operation between researchers and decison-makers

Co-operation between researchers and parliamentarians and senior officials takes the form of:

(a) Research work and advisory reports by individual scientists and scholars or institutes, commissioned by the government.

For example, the Deutsche Bildungsrat (German Education Council), an advisory body to the Federal and Länder governments, in preparing its recommendations obtains advisory reports from researchers in all fields of educational research.

(b) The appointment of experts to planning committees and governments' commissions.

Such bodies (e.g. the Joint Commission for Educational Planning set up by the Federal and Länder governments, or the German Education Council) cover a wide field, but also initiate specific research projects in curriculum development or school organisation (e.g. the "Blankertz-Commission" for the development of a so-called "Kollegstufe" or upper secondary school integrating general and vocational elements).

(c) Special institutes for educational research.

Among these research institutes a distinction has to be made between those financed by the Federal and Länder governments together or by the Länder together, as are the Max-Planck Institute for Educational Research in Berlin and the German Institute for International Educational Research in Frankfurt, which engage in general educational research but at the same time make their potential available for special research projects commissioned by the government; and, on the other hand, those established by individual Länder governments. Examples of these institutes are the Staatsinstitut für Bildungsplanung und Studieninformation in Stuttgart (Institute for Educational Planning and Study Information), the Zentralstelle für die wissenschaftliche Begleitung von Schulversuchen Hanover (Centre for the Evaluation of School Experiments), the Pädagogische Zentrum in Berlin (Education Centre), and the Institutes of Educational Technology in Paderborn and Wiesbaden. Since 1971 the following institutes have been grouped together in the Bavarian Centre for Educational Research: the Institute for Educational Research and Planning; the Institute for School Teaching; the Project Group for the Evaluation of School Experiments; the Institute for Infant Education; the Institute for Higher Education Research and Planning; the Institute for Teaching Observation and Research, and the Project Group on School Counselling. There is also the Federal Institute for Vocational Education Research which is sponsored by the Federal government.

The research institutes of the Länder or the Federal government are of course more oriented towards government-sponsored research projects.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

In the first place co-operation between researchers and teachers, administrators and parents is institutionalised at the Land level in the form of the school advisory councils set up by the Ministries of Education and comprising representatives of all groups and associations concerned with school education. The task of these advisory councils is to assist the education authorities in the preparation of legislation, to discuss matters of fundamental importance, and to make proposals. Research still plays only a minor role in this process, however.

In recent years, a more concrete form of co-operation has developed in the planning of school experiments. The planning groups set up by the education authorities are in many cases the framework for co-operation among researchers and administrators, teachers and parents. Where experimental comprehensive schools or school centres are set up (comprehensive schools being nearly always experimental), as soon as the school opens, intensified co-operation begins, not only for the development of curricula, but also for school life in general, performance measurement and assessment, counselling, the "compensatory care" of pupils, etc. This, of course, also applies to school experiments at the traditional types of schools, as for example the "tenth class" experiment at Hauptschulen ('lower secondary schools).

At the moment the proportion of parents participating in this work is still considerably smaller than that of researchers, teachers and administrators. It can be enlarged only if parents are given more opportunities to qualify themselves for this co-operative effort by participating in information courses; if they take those opportunities; and if their part in this process is appropriately institutionalised, as for instance in the case of comprehensive school experiments.

1.4 Contribution of research to reform in the classroom

As already mentioned under 1.1, modern educational research is the starting-point for criticism of the traditional school system. The fact that this traditional system is no longer automatically accepted but is in all branches and in its whole concept subjected to a critical reappraisal is due not least to modern research and is an important prerequisite for reform.

It will not always be easy to determine the part of research in the reforms carried out in specific fields of education since these reforms stem not only from research but from various social needs and social groups, and also from the influence of the textbook manufacturers and the producers of teaching aids. Thus, for example, the introduction of the language laboratory in many German schools is due primarily to intensive advertising on the part of manufacturers and to the general desire for modern teaching methods, but not so much to the results of educational research. On the contrary, experience with these language laboratories and the results of scientific studies to assess their effectiveness have shown them to be of less value than had been expected in the beginning.

A large proportion of the reforms carried out in the Grundschule (primary school, grades 1 to 4 or 1 to 6) in the Federal Republic of Germany can be attributed to research. The gradual abandonment of the "volkstümliche" concept of education in favour of science-oriented teaching methods, even in the Grundschule, has not come in response only to socio-political demands but has been determined largely by the results of research on abilities, which proved to be most useful for research on teaching methods, especially for science and mathematics. These results in particular have influenced not only the Grundschule but also maths and science teaching in all types of schools, as expressed by the concept of "teaching and learning by example" formulated by Martin Wagenschein. They have also brought initial reforms at the higher level of the Gymnasium on the basis of the Saarbrucken Framework Agreement of 1960, which envisaged a greater concentration of instruction on a few subjects to give pupils a deeper knowledge of them. And they have had an impact on the modernisation of maths teaching in accordance with the "recommendations and guidelines for the modernisation of mathematics teaching in general education" adopted by the Standing Conference of Ministers of Education of the Länder on 3 October 1968. In addition, educational research has a permanent, direct influence on all spheres of education insofar as the results achieved are increasingly applied in the training of teachers.

Finally reference is made to the influence of advisory reports (see 1.2). In 1969, for instance, the Commission on Education of the German Education Council published in a volume of advisory reports entitled "Begabung und Lernen" (Talent and Learning) (1) the results of empirical research in a number of fields in the Federal Republic of Germany and other countries. In the Structural Plan for Education published in 1970, the Commission on Education drew from this preliminary work the conclusion that encouragement was preferable to selection in the school: this was the theoretical basis for performance diffentiation in specific subjects. Where the structural plan has been incorporated in government plans, such as the federal government's education report for 1970 or the interim report prepared by the Joint Commission for Educational Planning, the advisory reports, too, have had a wider and stronger impact. Much the same applies to advisory reports commissioned directly by the Federal and Länder governments, so that the influence of research on educational policy can be confirmed. Political decisions by the Federal government, the Länder, the Conference of Ministers of Education and the Joint Commission for Educational Planning have usually been supported, even stimulated, by such advisory opinions, researchers' proposals, and the plans and recommendations of various commissions and advisory bodies, especially the German Education Council.

(1) Heinrich Roth (publisher), Begabung und Lernen, Ergebnisse und Folgerungen neuer Forschungen, Stuttgart, Klett-Verlag 1969 (Deutscher Bildungsrat, Gutachten und Studien der Bildungskommission, Band 4).

Moreover, a basis for the systematic application of the results of educational research will be provided by the research work commissioned by the Committee on Innovations of the Joint Commission for Educational Planning, on the evaluation of model experiments in order to define the medium-term aims of the General Plan for Education.

1.5 Major obstacles to a greater impact of research on the classroom

Notwithstanding the significance of scientific knowledge for the development of education, it must also be said that owing to the increasing speed of change in all spheres of life the results of research are valid for only a short time. This is therefore the first obstacle to the impact of research in school - a view held by both the traditionalists and modern sceptics, although for different reasons. Hence research itself is the biggest obstacle if it aims to exercise too great an influence in the classroom. This is felt most of all by the young teacher straight from university or training college when he tries to apply what he has learnt, without sufficient response from his colleagues. The difficulties that arise could be mitigated and the impact of research increased by creating a stronger, regular link between serving teachers and research findings through in-service training. However, improving and intensifying existing in-service training opportunities for teachers will not remove the obstacles if teachers are indifferent or uninterested. Even compulsory in-service training would hardly provide a remedy. And the existence of several hundred different educational periodicals gives no true indication of the extent of the interest in the results of modern educational research.

Another obstacle is the traditional separation of the school from research work. Though today empirical educational research makes greater use of actual school practice than in the past, it still cannot be automatically concluded that the creation of the best school situation is also considered an object of research. It seems that in some cases at least researchers see the school merely as an object of study which presents a variety of detailed questions for answer and thus as a vehicle for scientific publicity. The danger of such a one-sided approach is that it will produce one-sided results which will miss the whole point of improving school education.

By comparison, the financial and organisational problems which prevent closer links between the school and researchers appear to be small. Moreover, the fact remains that the mere existence of specific institutions with the task of intensifying these contacts would have a stimulating effect on both teachers and researchers.

1.6 Researchers and educational experiments

The question of co-operation among researchers and teachers, administrators and parents has already been examined under 1.3. In supplementing those remarks and with reference to the comments made under 1.5, it can be said in general that, owing to the traditional separation of research and school teaching and to the different motives of researchers and teachers, a practical form of co-operation must first be developed. Since all teachers receive a scientific training in teaching they are in a position to assist in the solution of educational problems using scientific methods, in other words as researchers. Indeed, in view of their practical experience they will in many cases feel superior to the researchers. As, on the other hand, not all the problems of practical teaching or of a single school experiment can be studied by researchers, teachers often undertake, with the approval of the education authority, to solve some of the problems themselves. This applies in particular to the elaboration of curricula for specialised subjects. It has become increasingly appreciated, not least in view of the recommendations of the German Education Council, that planned and scientifically controlled experiments are necessary for the future application of practical experience and the results of scientific research. In such experiments co-operation between researchers and teachers is usually institutionalised.

There has been an increasing tendency for school experiments to be scientifically evaluated as a result of the agreements adopted by the Conference of Ministers of Education in 1969 on the execution of experiments with all-day schools (Ganztagsschulen) and comprehensive schools. And in the meantime this system has assumed considerable proportions as a result of the framework agreement between the Federal government and the Länder, dated 7 May 1971, over and above the experimental programmes of the Education Ministers' Conference.

In general scientific evaluation is done by project groups of mixed composition. Besides a nucleus of researchers their members are officials of the education authorities and teachers from the schools involved in the experiments.

In addition projects are equally carried out by certain institutes within or outside the framework of the universities. Besides those mentioned under 1.2 we must name here the "Centre for Empirical Educational Research" at the Erzeihungswissenschaftliche Hochschule Rheinland-Pfalz - Abteilung Landau - Director Professor Ingenkamp.

It is still not possible to determine exactly the part played by teachers and researchers in innovations or the role of researchers in the general application of successful experiments. An initial evaluation of school experiment programmes is to be made in 1975.

1.7 Familiarisation of student and practising teachers with educational research

As mentioned under 1.6, all teachers in the Federal Republic of Germany receive a scientific teacher training. As a general rule it embraces educational subjects and specialised subjects. At present prospective teachers for the Grundschule and the Hauptschule still receive a more intensive training in education than those studying to become teachers at Realschulen (intermediate schools) and Gymnasien (grammar schools). This latter category, however, have a closer link with school practice and the results of educational research during the second phase of their training, that is, during the probationary period. But although the participation of students in research projects is becoming more intensive it has not yet reached the extent that it could be considered an integral part of their training. Nor is it specifically stipulated in the syllabus or training regulations, but such participation is possible in seminars conducted by their lecturers and also during the periods of practical teaching which are part of every student's training.

Reference has already been made to the possibilities for practising teachers to keep in touch with current educational research. Although every teacher can make contact with educational research by participating in further training courses organised by the education ministries, their agencies, local education authorities, and educational associations, the establishment of closer links between teacher training institutions and research institutes on the one hand and between the organisations providing further training for teachers on the other, as well as the creation of possibilities for all teachers to attend such further training courses regularly, is still in the planning stage and is the declared aim of all ministries of education.

Reference is also made to the foregoing comments on co-operation between teachers and researchers in school experiments.

1.8 Rationalisation and cost saving through research

Rationalisation in teaching is chiefly the result of school building research, but also of research into teaching methods. Reference has already been made (1.4) to teaching and learning by example, which to a large extent governs the form of teaching and has led to a concentration on specific subjects and hence to a deeper study of them. Mention is also made in this connection of team teaching experiments and of the increasing use of technical aids in teaching.

As the impact of these innovations still requires more thorough research, all that can be said at the moment is that there is a growing tendency to rationalise by means of such technical aids without it yet being possible to make a definite appraisal of the results achieved. The arguments cleverly advanced by the manufacturers are in themselves not an adequate basis for such an appraisal.

Up to now, rationalisation and cost saving resulting from research has been the subject of studies in the Federal Republic of Germany only in the field of vocational education (basic and phased training). The results of these studies are contained in the report prepared by the commission of experts on the costs and financing of vocational education ("Edding report"). As educational technology has not been developed to such an extent as to permit genuine assessment as to whether it will save teaching staff costs, it is rather the case at the moment that costs tend to rise initially through the purchase of technical equipment.

1.9 The role of educational research at the post-secondary level

Criticism of the traditional school educational system and teaching methods has quickly spread to the institutions of higher education. Protracted courses, overloaded syllabuses, and the tendency for courses to be too strongly oriented to the special interests of individual researchers, have given rise to a demand for the development of specific teaching methods. The development of tertiary-level teaching into a new academic subject and its institutionalisation are still in progress. The various subjects of educational research, which up to now has been concentrated more on the schools sector, will have a fundamental role to play in the application of teaching methods in the sphere of higher education. The Federal government and the Länder plan to set up centres for the development of higher education teaching methods as a means of institutionalising this new branch of educational research and of establishing a close link with the problems of teaching and learning at universities and other institutions of higher education. In the meantime, the Joint Commission for Educational Planning appointed by the Federal government and the Länder has launched a comprehensive programme of model experiments accompanied by scientific studies in the higher education sector.

2. GENERAL FRAMEWORK

As the questions in the second part largely correspond to Section I of the Federal Republic's report for the Second European Survey of Educational Research for the period 1969 to 1970, it was decided not to repeat general basic data here. Hence the answers to the second part are more or less confined to developments in 1971-72, following on from the more descriptive information of previous reports.

2.1 Promotion, planning and financing of educational research

Owing to the increasing and changing requirements of education and the different attempts to introduce reforms in various fields, the Federal Government and the Länder have reached the conclusion that comprehensive, long-term educational reform can only be achieved by joint, co-ordinated planning. As a result growing importance is attached to educational research, for it was only logical that systematic educational planning should also lead to the planning of educational research. Consequently, the Education Commission of the German Education Council recently set up a project group to study "the planning of educational research" and to draw up a recommendation. The group has not yet completed its study. In addition, the Joint Commission for Educational Planning has instructed its Committee on Innovations to make preparations for the establishment of a joint planning body to promote curriculum research.

In keeping with the growing importance of educational research at the national and regional level, this aspect of research has in the period covered by this report received considerably more attention from the institutes, councils, governmental commissions (see also 1.2) established for this purpose as well as within the universities. One reason for this has been the leeway that had to be made up in this sector, and another the realisation that educational research was required as a basis for decisions in the field of educational planning. Thus it was that educational research has become an integral part of practical educational policy. At the same time, researchers have derived considerable stimulus from practical educational planning (see also 1.4), and also substantial financial support.

The developments in this field as described in the report on the educational research policy of the Federal Republic of Germany for 1969-70 (1) have continued. Joint planning was made possible for the first time by the establishment of the Joint Commission for Educational Planning by the Federal government and the Länder, and in 1971 a joint long-term overall plan for the co-ordinated development of education was submitted in the form of an interim report on the overall education plan and budget, and also in recommendations for the implementation of priority measures in the field of education (1972). At the same time, the Federal government and the Länder agreed jointly to promote innovation projects of supra-regional significance in the field of educational planning and research . These projects for the most part cover curriculum research and development as well as model experiments.

Although the Federal Republic has a central institute for educational planning in the form of the Joint Commission, there is no central organisation for the planning and co-ordination of scientific educational research. However, the co-ordination of evaluating research, which is the responsibility of the Joint Commission under the framework agreement of 7 May 1971, is in preparation. But as the Joint Commission, the Education Council and the Science Council work in close co-operation with the institutes of educational research, overall educational planning has an impact on research. At the same time, educational research gives impulses for planning without a special co-ordinating body having been established for this purpose (see also 1.2 and 1.4).

Owing to the many different types of organisation and the large number of educational research institutes, it is not possible to obtain a complete picture of the financing situation, especially as there is a lack of a comprehensive documentation system for this field.

2.2 Expenditure

For a complete study of expenditure in this field the following data would be required:

(a) The expenditure of institutions of higher education, not forgetting that staff costs always include expenditure on teaching and research;

(b) Expenditure of the Länder over and above what they spend on higher education institutions and research institutes (see 1.2);

(c) Expenditure of the Federal Ministry of Education and Science for educational research in the wider sense, excluding the promotion of research institutes;

(d) Expenditure of all other federal ministries on educational research;

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(1) "Educational Research - European Survey 1970" Vol. IV. Published by the Documentation Centre for Education in Europe.

(e) Expenditure of the foundations on educational research;

(f) Expenditure on the major educational research institutes;

(g) Other expenditure, private sources.

As only a few budgets make special provision for educational research, the information given here about various institutions, programmes and promotion measures can only serve as an example. In 1971-72, the Federal Ministry of Education and Science spent DM 38.1 million on project promotion, Bavaria DM 5 million in 1973 on the institutes and project groups mentioned under 1.2, North-Rhine-Westphalia DM 6.5 million from 1970 to 1972 on the Research and Development Centre for Explicit Teaching and Learning Procedures, Hesse DM 7.7 million in the period 1970 to 1972 on the Education Technology Centre.

The Volkswagenwerk Foundation has set aside DM 328.5 million for the period 1963 to 1978. The German Research Association spent DM 4.4 million between 1969 and 1972 on educational research as a priority research area. And between 1963 and 1972 the expenditure of the Max-Planck Institute for Educational Research was DM 39.3 million.

The expenditure of other institutions has been as follows: The Pädagogisches Zentrum DM 27.3 million (1963 to 1972), Deutsches Institut für Internationale Pädagogische Forschung (German Institute for International Educational Research) DM 20.8 million (1963 to 1972), Deutsches Institut für Fernstudien (German Institute of Correspondence Studies) DM 9.2 million (1972), Deutsches Jugendinstitut (German Youth Institute) DM 6.6 million (1970 to 1972), Neues Deutsches Institut für Wissenschaftliche Pädagogik (New German Institute for Scientific Education) DM 2.0 million (1971 to 1972), Institut für Bildungsplanung und Studieninformation (Institute for Educational Planning and Study Information) DM 16.3 million (1969 to 1972), Bundesinstitut für Berufsbildungsforschung (Federal Institute for Vocational Educational Research) DM 16.3 million (1970 to 1972), UNESCO Institute for Education DM 6.2 million (1965 to 1972).

2.3 Priorities

As indicated in the preceding report, the Standing Conference of Ministers of Education considered it necessary in view of the limited financial resources and the still small number of researchers in the field of educational research to set priorities and to indicate certain spheres of educational research where early assistance is needed to prepare the necessary political decisions. The priorities can be determined on the one hand by the topics described in the preceding report and, on the other, in connection with the proposals for the implementation of priority measures agreed between the Federal government and the Länder in the summer of 1972. These priorities for future educational planning, which will automatically have an impact on educational research, fall into the following categories:

- Improvements in the pre-school sector;
- Vocational education up to the end of the upper secondary stage;
- Introduction of the guidance level (Orientierungsstufe);
- Providing the necessary teachers;
- Enlarging the capacity of higher education institutions.

The main areas of research will have such central themes as: curricula, socialisation, learning and performance, organisation and planning, educational system and employment structure, and in some cases problems of method such as research into testing, evaluation projects, and international comparative research.

2.4 Dissemination of information

The traditional instrument for the dissemination of research information is the educational periodical, of which there are over 250. Apart from those dealing with educational research in general, there are various others for teachers, administrators, parents and pupils, which present the results of educational research in a form suited to the particular category of reader. Parents' periodicals in particular have a popularising effect. Thus all interested groups and the public in general have access to research information. In this connection special importance attaches to the published reports of the German Educational Council.

Another medium of dissemination are the regular surveys of educational research projects which various institutions have been carrying out since 1968 and the results of which appear in the various publications. Major surveys are the one carried out by the "Arbeitskreis für die Dokumentation sozialwissenschaftlicher Forschung" (Working Group for the documentation of research in the field of social sciences), which represents a number of documentation and research institutes, and those of the Secretariat of the Conference of Ministers of Education within the framework of co-operation in the Council of Europe's Committee for Educational Research. The Federal Ministry of Education and Science also participated for 1973. The results of these surveys are made available to all research institutes concerned and to other interested persons. Hitherto there has been no standard system of surveying projects of educational research.

Apart from the information generally provided by the press and other mass media, research information is disseminated through direct contacts between researchers and school and university teachers, trade unions, associations, etc. Today, the numerous research institutes do not rely on researchers alone but also call upon the services of teachers, administrators and the representatives of various associations because they have realised that educational research can only be successfully pursued in close contact with educational practice. The representatives of the different groups meet together in project groups, advisory committees, supervisory bodies, etc., and quite often hold symposia to which the public sometimes are invited.

There is no institutionalised feedback of information from researchers, administrators and teachers to the main educational research organisations, but it takes place where there is co-operation among the different groups on joint projects such as school experiments. Feedback is also ensured by the regular discussions among the members of each particular group, as, for instance, in the Education Council and the Science Council, which comprise representatives of the Federal and the Länder governments, as well as of educational and scientific associations, and adopt joint recommendations.

2.5 Impact of research on educational development and innovation

Reference is made to 1.4.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

As in other cultural fields, educational research will be determined by the limited financial resources available in the public sector. It is subject to the pressures resulting from the requirements of educational planning and educational policy and thus, in order to be effective and successful, calls for greater concentration on specific areas of research closely related to educational practice. Within the educational system it will have to be centred on the present sensitive areas of educational policy reform in the Federal Republic of Germany.

Educational research will have to be applied more intensively than hitherto to curriculum research, educational diagnostics and educational technology and economy in school and higher education, including vocational education. Particular attention will be paid to the development of comprehensive schools and universities, and the transitions at different levels within these institutions. Priority will also have to be given to the problem of overcrowding at the universities in connection with the question of occupation-oriented training.

On the one hand, it will be very important to maintain the exchange of views between researchers and those concerned with education policy to ensure that educational research does not become isolated. Educational research requires, on the other hand, the co-operation and support of the groups and individuals concerned with educational practice. Thus it will be jointly planned, implemented and used for the purposes of education reform by researchers and teachers in mutually corrective learning processes. In this respect scientific terminology will have to be adapted to the terminology of teaching practice in order to maintain the structure of educational research policy that has grown in recent years.

New measures likely to change the present structure of educational research policy in the near future are manifest, inter alia, in the intention of the Federal government and the Länder to revise the whole process of joint research promotion. In pursuing this aim, the Federal government will, for instance, contribute towards various research institutes such as the Institut für die Pädagogik der Naturwissenschaften (Institute for the Teaching of the Natural Sciences) or the Institut für Film und Bild (Institute for Film and Pictorial Material). In theoretical terms, however, no system has yet been worked out for the approach to the problems of educational science and research. A group of experts appointed by the Education Commission of the German Education Council is at present working out a strategy for educational research which will consist of two parts, a systematic part concerned with the theoretical and methodological problems in the development of educational research on the basis of the various subjects, and a concrete part giving examples of the contribution of educational research to the solution of practical problems within the various specialised research institutes.

3.2 Intensified European co-operation

The participation, since 1972, of the Federal Republic of Germany in the financing of the CERI of the OECD has given a new impulse for closer international co-operation in educational research. The Federal Republic has already begun to provide financial support as well as personnel (in the steering bodies and the working groups) for the planning and projects of CERI. Also envisaged is support by the Federal Ministry of Education and Science for projects connected with the transfer of micro teaching materials or multi-media self-teaching units in biology.

Another basis for European co-operation is created by the participation of the Federal Republic of Germany in the Committee for Educational Research of the Council of Europe. One of the Committee's trend reports will be prepared by a German researcher. It is proposed to hold European seminars on educational research in the Federal Republic of Germany, and German researchers will participate in the Committee's visits programme.

In addition, the Federal Republic has played an active part through the German Institute for International Educational Research in the research projects of the IEA which have been in progress for a number of years. This basis for international co-operation is to be enlarged.

IRELAND

1. THE ROLE OF RESEARCH

[illegible] information.

2. GENERAL FRAMEWORK

The special nature of the Irish educational system and its traditions must be taken into account in evaluating the procedures used for encouraging research and the dissemination of research results. In general it may be said of the main primary, secondary and university systems that compared with most other European countries ours is an aided rather than an administered system and that our schools, colleges and universities have a long tradition of autonomy in many issues which would be a matter of central or regional policy-making in most other European countries.

In addition the relatively small size of the country both in area and in population must be considered, and finally that research policy - educational in the modern sense - is of recent origin in Ireland. However in a relatively short period the importance accorded to research has grown and is continuing to grow rapidly.

2.1 Promotion, planning and financing of educational research

There are several mechanisms used to promote educational research in Ireland. First, there is an Educational Research Centre attached to one of our major teacher training colleges, St. Patrick's College, Drumcondra. This agency is in part funded by the Department of Education but has also had considerable success in getting outside funding for particular projects. Second, the major national research agency on social and economic issues, the Economic and Social Research Institute, engages from time to time on research in those areas where the educational system and the general social and economic system overlap. Third, the Department of Education operates a grant system whereby applicants mainly from universities who wish to engage in education research may be financially supported; the universities also engage in education research activities which are not specifically funded by the Department of Education. Fourth, some of the local educational authorities, the Vocational Education Committees, engage in or sponsor research and this activity is in part funded by the Department of Education. Fifth, the Institute for Public Administration has engaged in research (e.g. on civics education) in areas where education and the general society overlap. Finally, certain special commissions (e.g. that evaluating the Intermediate Certificate Examination) are funded to enable them to commission research on the topics relevant to their mandate.

Certain elements of co-ordination are at present exercised largely in an informal manner by an internal committee of the Department of Education concerned with allocating the research grants mentioned above, as most of the agencies in question seek part of their funds for specific projects from this committee. Plans for reviewing, expanding, and improving the co-ordinating mechanisms are under active consideration.

A number of pilot projects on curriculum development have been established in schools, and it is hoped to use them as models for the study of the implementation of curriculum reform. These projects included a study of an integrated environmental studies programme in a number of second level rural schools and a number of Special Curricular programmes for urban disadvantaged pupils.

2.2 Expenditure

An annual estimate is made in the context of a Programme-Budgeting survey of the expenditure on research and development from departmental funds. This estimate does not

include expenditure on this item which the various agencies and universities cover from their own or external funds.

2.3 Priorities

In considering this question of priorities and the development of priorities, the autonomous or semi-autonomous nature of bodies who mainly engage in educational research, particularly the universities and the Economic and Social Research Institute, must be taken into account. The position is that the Department writes each year to the universities and other relevant agencies and invites them to submit projects for financial support. These bodies decide for themselves which projects, if any, they are interested in at that time and then apply for support for these projects. The Department then decides which projects it intends to support and the extent to which it is in a position to support it. In the case of the Educational Research Centre at St. Patrick's, the basic budget is met from department funds; the Centre decides which research projects it wishes to carry out and may if it wishes request the department for additional funds for particular projects as well as seeking outside funds. For these reasons we may regard the decisions regarding priorities as reached on a decentralised basis. Naturally, on occasion the Department can informally indicate that it would wish to see some research done in a particular field; it would then be for a particular university department or other agency to decide whether they would wish to and were in a position to engage in research in such an area. It is possible to say that such informal arrangements have on occasion resulted in significant and relevant research activity.

For some time past, the Department of Education has been giving special attention to the need for making the teaching of Irish more effective in the schools. The first part of this task involved a three-year research project, completed in 1966, into the structure and vocabulary of spoken Irish, with a view to ensuring a scientific basis for the teaching of the language.

The following is a brief account of the research involved :

A. Spoken language: vocabulary, morphology and syntax

Approximately 250,000 running words of spoken Irish - normal conversation - were collected on tapes. Of these, 200,000 words were typed from the tapes and analysed as follows:

i. 100,000 words were computer-coded and fully analysed for sentence structure, verb occurrence, verb form use, etc. The analysis gave complete information as to all verbs, verb forms, verb uses and sentence structures occurring in the conversations. The information is available both in extended form in respect of each verb and structure and in summary form in respect of verbs and structures generally.

ii. A further 100,000 words were coded and analysed for individual word and word-form occurrence, results being obtained both in extended and in summary forms.

The common factor in the two analyses mentioned above was the frequency of the occurrence of every verb in the conversations. The similarity between the results of both studies insofar as verbs were concerned was so remarkable that the original plan to analyse 500,000 running words of conversation was abandoned as being unnecessary duplication of effort.

B. Specific vocabulary - Irish language

Linguists distinguish between structural or general vocabulary and specific vocabulary

and it is accepted that the latter type cannot be adequately determined from a study of even a considerable core of normal conversation. Accordingly, questionnaires were devised which were completed by 260 native speakers of Irish. Each speaker gave his estimation of the twenty most essential words required to speak on each of twenty common topics of conversation. This total of 104,000 words was computer-analysed; extended and summary lists were obtained.

C. Specific vocabulary - English language

An exactly similar project was carried out in regard to what native speakers of English considered the most essential words in the English language for which Irish equivalents would be needed by learners insofar as the same topics were concerned. This gave a corpus of 104,000 words in English corresponding to the 104,000 Irish words referred to above.

Study, selection, editing and analysis of the results of A, B and C above provided BUNTÚS GAEILGE (corresponding to Français Fondamentale, but more scientific and explicit in regard to sentence structure or syntax), which was published in 1966. BUNTÚS GAEILGE contained about 1,500 vocabulary items, 140 structures and other ancillary information as to verb form, usage, etc.

The next stage involved the application of the results of this research to the production of scientifically-graded courses for the teaching of Irish in the schools. Experimental audio-visual courses were prepared for use in junior classes in primary schools. The first pilot scheme concentrated on evolving suitable teaching methods in a small number of pilot schools. The second pilot scheme consisted of testing a full year's course, complete with teacher's handbook and audio-visual aids (tapes and figurines), in about 150 schools. As a result of these pilot schemes, the first course was modified and developed into a two-year course for classes I and II in primary schools.

Pilot schemes for other age-groups were inaugurated at one-year intervals and developed as above so that, within a period of five or six years, audio-visual courses with all necessary teaching materials and aids were provided for every class (Infants to Class VI) in every primary school in the country. As a result of further experiments, it was decided to provide filmstrips, instead of figurines, for the two senior courses (Classes V and VI). Ancillary reading material and work books based on all these courses were produced by publishers in consultation with the course designers.

Audio-visual Irish courses have similarly been produced for the first two years of the post-primary school programme.

These courses are under continuous review by the department and there is constant feed-back from the schools. In the light of this review and the experience gained in the use of the courses, these courses are revised and modified from time to time, both as regards subject matter and teaching methods.

A project to provide a follow-up to BUNTÚS GAEILGE is proposed. This will involve a linguistic analysis of a corpus of written material in the Irish language, which can be utilised in preparing courses at more advanced and specialised levels, and in facilitating the teaching of other subjects through the medium of Irish.

2.4 Dissemination of information

In considering this question the relatively small scale of the country needs to be taken into account. For this reason informal or semi-formal procedures have a higher probability of being effective means of dissemination than they would be in a larger country. The main means by which research information is disseminated both amongst researchers and teachers and administrators are by publications, through professional channels and seminars.

The Research Centre in St. Patrick's, Drumcondra, publishes a journal "The Irish Journal of Education" twice a year, in summer and in winter and in addition to that publishes individual monographs. The Economic and Social Research Institute has a well established series of publications of research results. The Department of Education publishes a journal "Oideas" four times per year in which significant educational research developments and studies may be drawn to the attention of teachers. The Department of Education also covers all or part of the cost of publication of individual monographs through its grant system. In addition to the normal professional channels dissemination is achieved by means of seminars and lectures given by researchers and interpreters at the twelve Teacher Centres situated at key points around the country. These centres are used for a wide variety of seminars, lectures, discussions. They are so situated as to be convenient to a high percentage of total teachers. They also provide the opportunity for researchers to get some feedback from teachers, and other interested members of the public. In addition various university departments as well as the other institutes hold seminars at which particular projects are presented and discussed.

2.5 Impact of educational research on educational development and innovation

In considering the impact of educational research in Ireland, it is of course necessary to advert to the fact that all researchers, teachers, administrators as well as members of the general public have a competent knowledge of English. For this reason it needs to be stressed that we need to consider the impact of all educational research published anywhere in the English language as well as research carried out and published in Ireland. Naturally in terms of volume the former is vastly greater than the latter. Although no formal surveys of the impact of research findings published in English has been done there is no doubt that many elements in the Irish education system are keenly conscious of research done both in the country and outside it and that the results of such research have a significant effect on the thinking and decisions of these elements.

As far as the Department of Education is concerned, a large number of educational research journals, both home and foreign are received and circulated to various administrators and specialists. These no doubt influence their decision-making at appropriate points. The action of the Council of Europe is sponsoring a wider dissemination of European research will no doubt contribute at an early date to a wider knowledge of research findings published in languages other than English.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The department is conscious of the fact that policies and structures have grown up somewhat spontaneously over the last decade and realises that the time is appropriate to review policies and structures. For this reason it intends to set up a review group composed of various elements in the system interested in research or its findings to make an evaluation of the present system and recommendations for improvements. The Council of Europe will be kept informed of developments in regard to the proposed group.

3.2 Intensified European co-operation

No information.

ITALY

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Italian education system which affect the role that educational research plays in it

The Italian education system is characterised at all levels by a fairly constantly high degree of centralisation. This has led to uniformity in curricula, school calendars and timetables. Since these aspects of school life are laid down by law, there is little possibility of departing from the main model. Our system is therefore at present rather rigid, and this is not conducive to co-operation between schools and research institutes. However it is possible that the creation of "school districts" may set in motion a process of decentralisation in school management.

The pre-school level

In contrast to the situation at other levels in Italy, the part played by the state at the pre-school stage is still minor compared with that played by public and private organisations; the law governing the organisation of state nursery schools is relatively recent (1968). Such schools are set up as and when they become really necessary, particularly in less developed areas and centres of rapid urban growth. As to any real link between these schools and the new ideas put forward in research, we cannot truly say that the situation is ideal. The absence of state intervention has meant a marked lack of homogeneity among private schools. Moreover, any effective improvement in the situation is at present difficult to envisage because the teachers' level of training is rather low: they are generally trained in "Scoula Magistrali" (training colleges of upper secondary level for nursery school teachers) which, with the three-year courses they offer, do not seem equal to preparing young teachers psychologically and pedagogically for such a complex role.

Primary schools

Primary education is chiefly provided by the state. We have already mentioned the rigidity of the school system. Nevertheless, there have been moves to reduce the number of pupils in each class and to experiment with whole-day schooling. But again, probably the main obstacle to effective innovation in education in the light of research results is the inadequacy of teacher training. This is given in the "Istituti Magistrali" (training colleges of upper secondary level for primary teachers with a four-year course). Even though, in general, the results obtained in primary schools cannot be said to be bad, even from a comparative point of view, that is partly because selection is extremely severe in the competitive entrance examinations for the training colleges. As we said in the context of nursery schools, genuine reform of teaching procedures depends not only on a change in overall legislation but also on the introduction of new teaching methods in the training of primary teachers, which would have to be done at university level and in close co-operation with research institutes. Such a change is all the more essential when one considers that the stagnating of the birth rate has led to a modest growth rate in primary schools and to a slower turnover of teachers. Far-reaching and thoroughly organised action must be taken to retrain the present teaching staff.

Lower secondary schools

The lower secondary school (Scuola Media) rounds off the compulsory first eight years of education. It covers three years, organised around a common core, with some opportunities for the pupils to study different subjects, for example Latin, which is the decisive choice, during the third year. As to the teaching methods, the influence of the old "humanist" schools, which

previously occupied the same level in the national education system (1) is perhaps still too apparent, despite the 1962 Act designed to reform education. The reasons why an act which, from its content, was so clearly intended as a reform, taking up the major ideas put forward by research, was unable to achieve its real aim of a general improvement and a redefinition of teaching methods, are to be found in the following factors:

- the inadequate training of the teachers for their profession: the type of syllabus used at university, both in arts and sciences, generally speaking provides teachers with a good cultural grounding but almost entirely neglects the real problems of teaching and the need for fresh approaches;

- the tremendous increase in the school population, which has been met with emergency exceptional measures in an attempt to bridge the main organisational shortcomings rather than with a large-scale long-term plan;

- the fact that the new schools have been placed in an institutional context which in itself has not changed.

In many aspects the organisation of lower secondary schools is still further in advance of the real surrounding situation in that it reflects educational trends which presuppose the existence of a close link between the schools and research. In any event, special attention is now paid to integrated whole-day teaching during these three years' compulsory and largely uniform schooling which follows the five years of primary education.

Upper secondary school

With regard to teacher training we might repeat what we said in respect of lower secondary schools namely that the situation is extremely complicated. There are schools whose main aim is to prepare pupils for an occupation (2) and other schools where they receive general preparation with a view to later university studies. That is the situation at present, but a reform is planned which would mean a total re-organisation of upper secondary schooling. This would be extended to five years and would be organised in the following way:

- a common core of studies;

- optional study groups, both taking the common subjects to a higher standard and providing courses that are logically structured to lead to an end qualification;

- additional voluntary activities whose object is to harmonise the education of the mind and of the whole person, and to help pupils find their own personal vocation.

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(1) Together with vocational training schools.

(2) There are various qualification levels - establishments which train primary school teachers and others for nursery school teachers, technical establishments which train lower secondary teachers to give instruction for a large number of vocational qualifications, and finally vocational training establishments which chiefly prepare students for manual and practical work.

The choice of optional groups in the first two years, which will form a homogeneous whole, will not affect the right to enter any of the lines of study offered in the following three years.

The second phase of upper secondary education will maintain a comprehensive character by virtue of the common body of cultural education which all pupils will receive, and in addition will have three streams, which we shall call humanistic, scientific and technical-vocational, each of equal value from a cultural point of view.

Within each stream, the abilities and preferences shown by the students up to that time will be developed and encouraged in optional teaching groups and through additional voluntary activities.

In vocational training, in addition to the three-year courses there will be full one- or two-year completion courses, planned along similar lines to the three-year courses with regard to the breadth of studies, the optional groups and the additional voluntary activities.

All the different group options should be available in each school, if possible; if not, then in each school district.

Moreover, an Act of 1969 gives holders of the baccalaureat or the technical certificate awarded after five years of upper secondary education the unconditional right to enter a university faculty. However, the planned reform would limit and regulate this right.

Higher education

Whilst there are specific deficiencies in elementary and secondary education in Italy, we do not hesitate to say that at university level the teaching problems have so far, with a few exceptions, been utterly and totally neglected. The main argument which has raged for nearly twenty years whenever reforms have been discussed has been about the institutional and organisational aspects of universities, not really about teaching problems.

In this context the recent Act setting up the University of Calabria constitutes a notable exception. In comparison with other legislation it is a step forward. Particular attention has been paid to relations between the university and the region and to the demands of pure and applied research. It has also been explicitly laid down that the teachers are to be trained by new methods in a department of education.

We would add that parliament has still to vote on two further bills dealing with the universities (see section 3.1).

1.2 Co-operation between researchers and decision-makers

The influence of research workers and other specialists on the choice of national educational policy calls for study at the various levels at which it is exercised.

These levels are three: the wooing and guiding of public opinion; the popularising of ideas and critical preparatory work through associations, parties and trade unions; and finally the authorities empowered to deal with proposals which call for policy decisions by the executive.

The forming of public opinion

The very rapid development of school structures in Italy has evoked considerable interest among the public. The mass media are generally quite interested in school problems, and these are discussed both by journalists specialising in the subject and by well-known researchers. In general the part played by research workers through mass media is more in the nature of a contribution to the discussion of political and social topics than an attempt to broadcast and popularise significant research conclusions.

Participation by specialists in cultural, political and trade union organisations

Specialists and research workers usually play a major part in determining general trends and specific activities in cultural organisations, trade unions and political parties. The specialists make a decisive contribution to policy-making through their activities in the parties (particularly in their respective educational sections, or "Uffici Scuola"), where they work with teachers, members of parliament, trade union representatives, ministry officials and party leaders.

This method of establishing trends in educational policy has both advantages and disadvantages. One positive aspect, for example, is the interaction thus created between research on the one hand and political and legislative activity on the other. The same applies to the discussions which go on between the specialists and others involved in the complex political set-up from which the "Uffici Scuola" spring. However, sometimes the specialists themselves come to neglect the technical aspects of the problems with which they are qualified to deal and devote all their attention to the political debate.

Participation by specialists in official public bodies

Quite frequently specialists and research workers are members of official bodies and committees.

The supreme advisory body in matters of education is the High Council (Consiglio Superiore). It has three sections, for university education, secondary education and primary education. Normally each section works on its own, but the Council holds a plenary meeting to consider questions of a general nature which concern all the different branches of education or some reorganisation of the school system. The Chairman of the Council is the Minister of Education; some of its members are elected by the different categories of teachers and others are appointed by the Minister. Thus it is within the Council that these specialists and research workers who form part of it have an opportunity of exercising influence, though it may be somewhat limited, over decisions on educational policy.

In addition, where necessary, ad hoc committees are set up to produce proposals or plans for action. The committees are not formed exclusively of specialists, but also include civil servants and politicians. The most significant example of co-operation between these groups is to be found in the work of the National Committee of Enquiry into the Situation and Development of Education in Italy (Commissione nazionale d'indagine sullo stato e lo sviluppo della pubblica istruzione in Italia). This Committee worked from 1962 to 1963. Its final report was a model of commitment to reform and of strict rigour in its working methods. Another example is the committee which was set up to study a plan to reform upper secondary education, which completed its work in 1971 and produced very detailed and comprehensive comparative studies in the national and international contexts. For some years there has also been a committee for the authorisation and control of experiments in upper secondary education (Commissione per l'autorizzazione ed il controllo delle sperimentazioni a livello secondario superiore). A further committee supervises experiments in extending the courses offered by vocational training establishments (see 1.3). In the Institute of Economic Planning Studies (Istituto di studi per la programmazione economica) research workers and specialists also take part in preparing and drafting the national economic plan, insofar as educational problems are concerned. So far co-operation between specialists and official bodies has produced good results as regards analyses of situations and the drafting of documents. On the other hand, their real influence on the basic decisions, that is to say on policy choices and parliamentary bills, has been fairly limited.

Education centres (centri didattici)

The national education centres have an intermediate function in guidance and research. Their titles indicate their particular functions - they may either deal with a particular level of schooling (the Primary Schools Centre, the Technical and Vocational Training Schools Centre etc.) or with a special type of problem (the School-Family Relations and Educational Guidance Centre). There is also the European Education Centre (Centro Europeo dell' Educazione) in the Villa Falconieri, near Frascati (Rome), which plays a major role in research and information in the field of new educational techniques. Nevertheless, the activities of these centres remain fairly limited. Since they have no regular research workers of their own they call on specialists from schools and universities. The staff is generally composed of teachers seconded from schools.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

We noted in Section 1.1 that the Italian education system is characterised by its centralisation which makes it very difficult to introduce any complete range of major changes if these originate from the grass roots. We also mentioned the possibility of setting in motion a decentralisation process in school management.

Nevertheless, there are in fact opportunities for diverging from the central school model in several branches. For the sake of conciseness we shall confine ourselves to dealing with the pre-school sector, simply mentioning in passing that some noteworthy ventures have been made in other sectors, for example in vocational training, which is the responsibility of regional governments, and university education. Work is carried out by various study and research organisations such as CNITE (Centro Nazionale Italiano Tecnologie Educative), CENSIS (Centro Studi Investimenti Sociali), ISVET (Istituto per gli studi sullo Sviluppo Economico e il Progresso Tecnico (1)) and, of course, university institutes.

The pre-school establishments are still to a great extent administered by private organisations. In 1969, of a total of 46,158 teachers, only 17,108 were employed in state or municipal schools. The others were all in private schools. In the last few years a great deal of research has been done into the problem of pre-school education, and this has brought to the fore the need for early schooling to mitigate the effects of the conditioning factors in our society, which chiefly handicap children from poor and culturally deprived backgrounds. The increased awareness of such problems has stimulated lively debate, aided by the outlook prevailing in research. Consequently, thanks to ministerial action a number of innovations have been made in pre-school establishments, but such ventures have only spread in certain regions of Italy.

In the nursery school field the research and educational work done by the Montessori Foundation is of major importance. The Foundation administers a wide network of educational institutions based on the Montessori method while at the same time committed to research schemes aimed at constant modernisation of methods.

1.4 Contribution of research to reform in the classroom

The lively nature of the debates on the educational problems mentioned above has undoubtedly influenced many of the decisions of the legislative and executive powers. Nevertheless, it is difficult to assess to what extent research shaped these decisions and how far they were determined by de facto situations where out-dated forms of organisation had proved

(1) National Centre for Educational Technology; Centre for the Study of Social Investment; and the Institute for the Study of Economic Development and Technical Progress.

inadequate. Attempts were made to remedy inadequacies by applying the ideas put forward in comparative studies and in consultations with policy and school management specialists. We will here mention some reforms in which the contribution of people directly involved in research was a determining factor.

The pre-school level

The Act setting up state nursery schools represents a practical synthesis of the main methodological indications arrived at in research. The studies carried out by the Institute of Psychology of the National Research Council and as part of the IARD (Identificazione e assistenza ragazzi dotati(1)) programme deserve special mention. The Act makes specific provision for the need to eliminate socio-cultural conditioning factors, and above all takes into account the importance of linguistic ability when developed through suitable training at a very early age. Social integration plays a great part in the harmonious development of a child's expressive and creative faculties. In many respects in fact the Act is more progressive than the actual setting in which the Italian school system finds itself, having regard to the relatively low level of teacher training (see 1.1) and the hitherto very limited intervention of the state in this sector. In any event the school development plan now being drawn up provides for a considerable increase in state intervention at nursery school level, at the same time taking into account the results of some special projects which are to be carried out under strict scientific supervision. These projects are specifically concerned with eliminating socio-cultural conditioning at an early age, but it is difficult to foresee when they will enter the operational stage.

Primary schools

The institutional organisation of primary schools has become fairly entrenched over the years. However, this does not mean that some of the ideas put forward by research have not been taken up, but it has been done in fits and starts and often with tremendous differences from one school to another, or even from one class to another within the same school. A major point worth noting is the decrease in the number of pupils held back a year, which is a result of better definition and more flexible interpretation of the aims of compulsory schooling. The abandonment of old analytical methods for syncretic and integrated methods in teaching children to read is a a reform worthy of interest. Great importance is attached to the possibility of initiating children to modern mathematics at an early age, especially to the theory of sets. Remarkable advances have been made in teaching through active learning methods, as much in the heuristic aspects and in self-expression as in those aspects relating to group dynamics.

Lower secondary schools

We have already said something on this point in section 1.1. We would add that the standardisation of lower secondary education (three years) was preceded by a fairly comprehensive series of experiments carried out by the Italian Education Centre for Secondary Education (Centro didattico nazionale per l'istruzione secondaria). The reform also took into account some significant elements of pre-adolescent psychology and educational sociology.

Upper secondary schools

The main change in the organisation and arrangement of secondary studies, introduced with the help of many university specialists in education, particularly in testing, was the reform of the school leaving examinations. The regulations previously in force dated from 1923, when the reform bearing the name of the philosopher and then minister, Giovanni Gentile, was

(1) Identification and encouragement of gifted children.

introduced. The regulations had been greatly modified since their original drafting, but were chiefly based on oral expression in secondary studies. Moreover, according to this concept, the final examinations were designed to test identical studies, owing to the requirement for uniform preparation of young people throughout the country and of equality of conditions between public and private schools. In view of the fact of mass schooling, the new arrangements for the holding of school leaving examinations are designed to test the pupil's general level of education and his powers of critical analysis and synthesis, without attaching major importance to the extent of his knowledge of any particular subject. During the years following implementation of this reform, committees of specialists have studied statistics on the results of the examinations held according to the new procedures. In 1970, as part of the IEA - UNESCO project, wide-scale systematic surveys were carried out on a representative sample of the population on a national geographical basis. Specialists also played an important part in indicating basic requirements of upper secondary education. An ad hoc committee drew up a document which to a great extent was based on the opinions of international experts and which constituted a critical study of certain structural models of an education system. It is very significant that this committee, whilst expressing a preference for the fully comprehensive system, also stressed the need for gradual adaptation on the basis of a broad range of experiments subject to scientific supervision.

As to the planned reform of upper secondary education which is being studied by parliament, we would refer to the appropriate part of section 1.1 above.

Higher education

We have already pointed out that the debate on higher education was chiefly concerned with political and social topics. Nevertheless, some points made by research workers were widely publicised. In particular, it has become apparent that the organisation of educational research needs to be strengthened, partly with a view to improving the training and retraining of teachers. The need to re-appraise the traditional role of universities and for them to devote themselves to the promotion of permanent education has also been emphasised.

At present, several efforts are being made to modernise teaching methods, with especial recourse to audio-visual aids, computers and television. Experiments with closed-circuit broadcasts have been carried out in the Faculty of Medicine in the University of Rome. At the Automation Institute in Rome experiments are being carried out on computer-assisted teaching.

See Section 3.1 for the two bills on universities.

1.5 Main obstacles to a greater impact of research on the classroom

The reasons for the limited influence of research on the classroom in Italy are many and varied. Historical and cultural factors, as well as factors linked to the basic organisation of educational research in Italy, are involved.

Historical and cultural factors

Italian culture, particularly in this century, has been marked by a clear division between theory and practice. The former has been considered superior to the latter. For a long time the hierarchy of knowledge prevented technology from being seen as a practical expression of intelligence which was necessarily closely linked to the rate of development of theoretical work. From an educational point of view, this division meant that for a long time - let us say, up to the beginning of the fifties - no-one would consider pedagogics as a science, not even a science of education dealing with the techniques (and now with the technology) of teaching. It was felt that the teacher needed above all to know the subject he was teaching, and insufficient stress was placed on his need for technical preparation for his profession. For a long time - and this

attitude is still ingrained in many teachers - it was held that the essential point in the teaching process was the moment of cultural communication. New attitudes in educational science have first had to contend with the existing situation. In fact the traditional model is still crucial: it serves as the basis for teacher training. Thus it is often quite impossible to communicate the results of research to schools for the simple lack of a common language. As we have said, teachers are merely required to have cultural education, and they are not at the same time given psychological, sociological or educational preparation.

The organisation of educational research

Only a small number of research workers in a few universities or non-university bodies engage in educational research. The National Research Council, which by its statutes is responsible for the development of pure and applied research, has no institute or laboratory concerned with educational problems. At present schemes are merely under study. The section of the National Research Council which deals with educational sciences also covers history, philology and philosophy. In the circumstances, it is difficult to establish effective co-operation between schools and research workers. The only Council body which carries out research that concerns education is the Institute of Psychology.

A working party has been set up in the Institute to study the processes of learning, and this has led to research on a high level linked to similar programmes in other countries.

1.6 Researchers and educational experiments

In the preceding section we mentioned that links between the school and research are fairly weak. Consequently the part played by research workers in projects in the schools is still small. We would, however, mention a few local situations, paving the way for a more integrated plan of action, and which suggest above all the emergence of closer links between research and actual teaching. Experiments in standardising the first two-year cycle of upper secondary education, approved and supervised by the Ministry of Education, are being carried out in the Val d'Aosta, at Milan, at Rovereto and at Rome. Several regional authorities have set in motion experiments for the establishment of "school districts" and whole-day schools. These experiments and others which for the sake of conciseness we shall not mention here, are successful insofar as a major part is played by specialists, who ensure that the experiments are carried out correctly, particularly with regard to systematic analysis of data whereby the effectiveness of the projects can be ascertained.

However, these are still only isolated activities, feasible thanks to favourable circumstances such as the presence of particularly enlightened local government officers, universities prepared to co-operate etc.

1.7 Familiarisation of student and practising teachers with educational research

Arrangements for keeping teachers culturally and educationally up-to-date are made by the Ministry of Education. Courses are organised by the directorates concerned or by the school inspectorates (Provveditorati agli Studi) in co-operation with the education centres and university staff. However, the percentage of teachers directly involved is still very low. Retraining courses do not always assess teaching methods; sometimes they are merely lectures on cultural subjects. Otherwise, teachers wishing to keep up-to-date can simply read reviews and other scientific or popular publications.

As to university students who will probably go into teaching, in most cases they receive no organised information, but merely have access to the publications in university libraries and recourse to their own initiative. Most young teachers go into secondary schools without any more information than their personal memories of their experience as students. However new standards have been laid down for the teaching certificate (abilitazione all'insegnamento).

This is no longer awarded on the results of an examination in the subjects taught but after a course devoted to the educational sciences. Here there have been serious problems in finding a sufficient number of people qualified to teach the educational sciences.

1.8 Rationalisation and cost-saving through research

The possibility of reducing the cost of education by rationalising its organisation has so far only been considered from a theoretical point of view. To put such a plan into effect, even experimentally and on a small scale, would require tremendous technical know-how and qualified teaching staff. One method which might be used would be to generalise self-teaching procedures using modern instruction techniques. However, the present situation is not at all satisfactory. Investment in modern audio-visual aids for schools (overhead projectors, projectors, recorders, closed circuit television etc.) has not always been productive, since the teachers do not always know how to use them. Their use presupposes that the teacher is able to relinquish his individualism and to engage in team work involving the production of software. The school set-up in its present form is not conducive to such an approach.

1.9 The role of educational research at post-secondary level

Please see sections 1.1, 1.4, and 3.1.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

At national level there is no co-ordination of educational research. The Board of the National Research Council is at the moment studying the problem of co-ordinating the various committees in the field of education. The step taken by the Ministry of Education to make a survey of university and non-university research bodies can be seen as a stimulus in this matter. As part of the activities of the Council of Europe's Council for Cultural Co-operation, the Italian Ministry of Education will be publishing information every two years on research carried out in Italy.

Educational research is paid for in part by the Ministry of Education, either directly or indirectly, and by the National Research Council, various government departments, private industry, etc. In most cases payments are relatively small.

2.2 Expenditure

In the national education budget for 1973, 3,500 million lire were set aside to cover the cost of:

- studies, enquiries, statistical surveys and research concerning teaching and educational technology;
- participation in studies, training and experiments carried out in co-operation with national and international bodies;
- participation, through contributions and subsidies to universities and to other bodies and establishments under the supervision of the Ministry of Education, in the cost of studies, enquiries, statistical surveys and research into education carried out by them.

The budget has several other expenditure heads which can be deemed in part appropriated to educational research and development, for example:

- contributions to the running expense of the education centres (centri didattici): 34 million lire;
- expenditure on the running of state nursery schools and on other measures for mitigating socio-cultural handicaps of young children, for the making and broadcasting of school television programmes by the Italian Radio and Television network by agreement with the Ministry of Education, etc.: 5,600 million lire;
- the cost of retraining teaching and administrative staff (central and local) working in schools: 12,500 million lire;
- scholarships for educational and scientific training: 6,400 million lire;
- the promotion of information and guidance activities for secondary school pupils: 2,000 million lire.

2.3 Priorities

Since there is no overall co-ordination, it is difficult to say which sectors really have priority. Some general idea, at least, is given by the "Schools Development Plan". This provides for a series of special schemes in the nursery school sector, experiments with whole-day primary and lower secondary schools, experimental reorganisation at the upper secondary level and the introduction of new teaching methods. Once the guidelines given in the plan are implemented they will presumably stimulate research in these sectors.

2.4 Dissemination of information

Information is disseminated through reviews, books, lectures, seminars and retraining courses.

The Ministry of Education collects and periodically sends out information on educational research. There are no other sources of information apart from a few popularised versions put out by the Education Centres, the RAI-TV and, in the educational technology sector, the CNITE.

2.5 Impact of research on educational development and innovation

Please see Section 1.4.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The Council of Ministers recently adopted two bills on universities. If they are approved by parliament, tremendous opportunity for development will be opened up in all branches of research, including of course educational research. The bills provide for manifold innovations in the sector with which we are dealing, including the following:

- The establishment in the universities of departments (dipartimenti) which, with the councils for degree courses (consigli di corso di laurea), will replace the present faculties and will constitute the basic structure for scientific research in universities. They will also organise the scientific and teaching activities for the research doctorate (dottorato di ricerca).

- The creation of research doctorates, to be awarded as a recognition of scientific and educational research. They will be awarded by the department to those who, after obtaining a degree or on the basis of an equivalent foreign qualification, have carried out studies or research for at least four years and achieved original scientific results acknowledged by a special commission.

- The award, by annual public competitive examination, of 2,000 scientific and educational training scholarships (assegni per la formazione scientifica e didattica) for four-year periods to research workers who graduated not more than two years before the date of announcement of the examination. In addition to specific projects which the department will assign to them, the scholarship-holders will be expected to attend the courses for the research doctorate. They will spend at least one semester but not more than one year at a foreign university. During that part of the course, the scholarship will be increased by 50%. At the end of their educational training the scholarship-holders will be required to spend at least two days a week giving individual guidance to students and taking part in practical exercises. Young research workers who have already obtained their research doctorate may, if they so desire, become secondary school teachers.

- The creation of a uniform system of university teaching posts with only two categories: full professor (professore ordinario) and associate professor (professore associato). They will be allowed full scientific and teaching freedom, but naturally their activities will be in harmony with the research carried out by the department and will be co-ordinated as regards educational aspects with the guidelines given by the council for degree courses. They will also have at their disposal the funds and resources necessary for carrying out their activities.

3.2 Intensified European co-operation

No information.

NETHERLANDS

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Dutch education system which affect the role that educational research plays in it

Information on the structure of and legislation on Dutch education is to be found in "School System in the Netherlands" and "University Education in the Netherlands". For further information see Chapter IV and Appendix 1 of the OECD report entitled "Educational Policy and Planning. Netherlands" (Paris 1967).

The Dutch education system is characterised by a considerable degree of freedom and autonomy, which is attributable to the fact that the various religious denominations claim their own responsibility for education and to the concomitant principle that the State must refrain from undue interference. The State fixes certain standards relating to structural matters, curricula, school buildings, teachers' qualifications, etc., but otherwise educational institutions are free to use their own teaching methods. The role of research in Dutch education should be viewed in this context, schools and universities possessing a considerable measure of freedom in deciding whether or not to utilise educational research findings. This, of course, is not to say that research does not affect education in the Netherlands. To assume this to be the case would be to underestimate the initiative of the schools and universities themselves and the activities of the three national pedagogical centres and the regional centres set up to support innovation in this field, which pass on research results to the educational establishments.

1.2 Co-operation between researchers and decision-makers

A distinction must be made between quantitative and qualitative research. Quantitative research is undertaken with a view to determining quantitative needs, forecasting numbers of pupils and teachers, selecting sites for specific types of school, etc. It is carried out by non-academic institutions such as:

- the Central Statistical Office
- the social study institutes run by the national umbrella organisations of the various religious communities
- the Central Planning Bureau
- the Research and Planning Department of the Ministry of Education and Science.

These institutions are represented on the Planning Procedure Committee, set up in 1966 to advise the Minister on the establishment of new secondary schools. The Committee came into being in response to the new Secondary Education Act, which outlines procedures and quantitative criteria for the establishment of such schools.

Quantitative research relating to university planning has been carried out up to the present by the universities themselves and by a permanent committee of the Academic Council, the Committee for Statistical Research (otherwise known as the Dalmulder Committee). Research of this kind will shortly be delegated to the Educational Planning Office currently being set up within the framework of a new planning system for post-secondary education devised by a firm of consultants.

Qualitative research, which concerns the context, methods and structure of education, is carried out by several institutions, in particular pedagogical, psychological and sociological institutes attached to universities. It is co-ordinated by the Foundation for Educational Research (FER), set up by the Minister in 1965 to deal with research policy other than that relating to fundamental research and university education research, co-ordinated in a different way. It is generally felt that the FER should give more attention to research that is relevant to the national educational policy.

The FER's sphere of activity has recently been widened to include co-ordination of the research forming part of the work carried out by the non-governmental committees for the development of curricula; and of educational experiments requiring the assistance of research institutes, which also evaluate them. A special body, the Committee for Educational Experiments (CEE) consisting of officials of the Ministry of Education and Science and of the FER, was set up in 1972 for this category of experiment. It advises the Minister on the merits of proposed experiments and on their compatibility with the Minister's policy. If the Minister's decision is favourable, the research institute concerned receives a grant through the FER, which supervises the scientific aspects of the experiment.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

Collaboration of this kind is usual where experiments are involved. A distinction should be made here between two kinds of experiments, namely school experiments and the educational experiments referred to in 1.2 above. The former are not supported by research in the narrow sense of the word, are not evaluated scientifically, and are more numerous than those belonging to the second category. By and large, they are small-scale experiments undertaken by staff and parents on their own intitiative, who in some cases request the assistance of regional and national pedagogical centres.

For the second type of experiment, application must be made to the Committee for Educational Experiments. If the application is approved the educational establishment concerned can avail itself of a special structure serving all experiments in a given educational sector and consisting of various facilities in the fields of research, development and innovation. With the aid of that structure the establishment develops a plan outlining the goals of the experiment, the way it will be conducted and the role of research (in the narrow sense of the word) in the implementation and evaluation of the experiment. The expectation is that this type of experiment will yield useful data for policy decisions relating to the restructuring of primary and secondary education and to the structure of the new types of education for young people in employment.

1.4 Contribution of research to reform in the classroom

It may be assumed that some research findings are generally adopted either on the initiative of the national and regional centres for innovation or on the initiative of the schools themselves, though this is difficult to specify.

Another way in which research can influence classroom activities is by strengthening the relationship between research and national educational policy. This has been the effect of the establishment of the FER (1965) and the CEE (1972), neither of which have however been in existence long enough for concrete results of general significance for education as a whole to have been obtained. This course will in time prove its value. From the point of view of policy, special significance is attached to the part played by research in the educational experiments referred to above, which are expected to yield fresh ideas on education which may be adopted generally.

1.5 Main obstacles to a greater impact of research on the classroom

An entire report could be devoted to this question. Here, however, we can do no more than indicate the principal obstacles:

- Much educational research is of an entirely theoretical nature, which makes it inapplicable to classroom activities.

- Experience has shown that research findings suitable for putting into practice cannot be transferred direct to the school. Though some teachers are interested in innovation, others are not, or at least not sufficiently. This fact plus the need for supplementary staff training means that the findings must first be tested on a limited scale with a view to their effect on the school and the staff and to their consequences within the context of national educational policy. This testing phase is referred to as "experimental innovation".

- The application of research findings requires the intensive support of innovation specialists. It is generally considered that support of this kind cannot be provided by three national pedagogical centres, for which reason the Ministry is currently encouraging the construction of a network of regional centres for educational innovation and the individual guidance of pupils with learning difficulties.

- The dissemination of research results will be more effective after the establishment of a sound educational planning system designed to co-ordinate such results and to utilise them as the basis for plans relating to education in the future. For some years past a planning system for post-secondary education has been in process of preparation (see 1.2). This machinery will gradually be extended to policy-making for primary and secondary education as well.

1.6 Researchers and educational experiments

See 1.2 and 1.3 above, notably the references to the CEE and educational experiments. In addition to Ministry of Education and FER officials, the CEE also includes observers from the three national pedagogical centres and from the Education Council. It is engaged in drawing up rules and procedures to foster the collaboration of all institutions concerned with experiments of this kind, including schools, national and regional institutes engaged in research, development and innovation, the FER, the Ministry, the schools inspectorate, etc. Though this task has not yet been completed, there is considerable activity with experiments relating to education for young people (aged 15-18) in employment. A national service structure, representing the various branches of research, development and innovation required for the support and evaluation of these experiments is currently being set up. At the centre of this structure is the Implementation Group, consisting of educational specialists, which is responsible for the day-to-day guidance of local experiments. Another group to be set up, the Research Group, will contain representatives of various scientific institutes and will assist in the setting up and implementation of experiments. This will entail, inter alia, formulating research problems and evaluating the progress and results of those experiments. The group will report its conclusions to the FER, the CEE and the Ministry and will play a major part in deliberations regarding the generalisation of successful experiments.

The various parts of the service structure will work in close co-operation, particularly the Research Group and the Implementation Group, to both of which those carrying out local experiments can express their wishes. Their collaboration is essential if the maximum use is to be made of the available research facilities, though at the same time it is realised that the independence of research projects must also be guaranteed.

There are plans for a similar service structure for experiments in other educational sectors.

Reference is again made to the fact that both educational experiments and school experiments are conducted in the Netherlands, and that the latter are not supported and evaluated by research. It is not unusual for schools to seek to avail themselves of the facilities of the regional or national innovation centres or of the committees for the development of curricula. Requests for financial or legal aid with such experiments are assessed by an experiments working group consisting of officials of the Ministry.

1.7 Familiarisation of student and practising teachers with educational research

Research findings are channelled to schools in general and to teachers in particular in several ways:

- Publications of research institutes or researchers, the national pedagogical centres, etc.;
- Articles in educational reviews and teachers' journals and via the Ministry of Education's library and documentation system which is available to all wishing to use it;
- Excerpts from research reports and articles, notably those produced during the past two years by the Committee for Documentation on Educational Research under the title of "Research Documentation" - recipients include teacher training institutions;
- "0 - 4", a journal established some two years ago containing information on the activities of the FER, the three national pedagogical centres, the regional centres for innovation and the committees for the development of curricula;
- Radio and television broadcasts;
- Teacher training and refresher courses run by the pedagogical centres and university and other institutes. Though some progress has been made during the past year, communication between research organisations and teachers is still in need of improvement. Refresher courses in particular and the possibilities offered by radio and television require more attention.

1.8 Rationalisation and cost saving through research

Education innovation also implies rationalisation of the substance (curricula, methods, organisation, etc.) of education. We would refer in this context to the answer to 1.3 above. Generally speaking, it is difficult to point to concrete effects of research on the rationalisation of education, even though we feel sure that it stimulates rationalisation.

A similar answer must be given as regards the effects of the quantitative research referred to in 1.2 above. Quantitative research has undoubtedly contributed to rationalisation and cost saving, notably in the establishment of new secondary schools and in university planning, though here again we can give no specific examples. The rapid rise in the cost of education has made it clear that a great deal more attention must be devoted to the problem of efficiency and cost saving, and awareness of this fact is growing both within the Ministry and elsewhere. Educational and economic research should throw these problems into sharper relief. By utilising the results of such research the planning system now in process of preparation (see 1.2) could contribute to a more rational approach to the financial priorities in education.

1.9 The role of educational research at post-secondary level

The study reform planned at the post-secondary level relates to two points: the restructuring of university education and the integration of university education with higher vocational education.

A Government Commission (known as the Posthumus Commission) was set up in 1967 to study the objectives, functions and structure of university education. Parliament is to consider the Commission's recommendations this year. An important aspect of the discussion is the time required to complete a degree course. The second point, the integration of university education with higher vocational education, is currently receiving the attention of several committees on which research organisations are also represented.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The Ministry has delegated the greater part of the promotion, planning and co-ordination of educational research and development to a number of institutions, the most important of which are:

- the FER (the planning and financing of educational research, including the research entailed by development work). See 1.2;
- The Co-ordination, Documentation and Information Centre for Research on University Education, which was established by the Academic Council in 1969 to co-ordinate research on university education;
- The Netherlands Organisation for the Advancement of Pure Research, which provides grants for fundamental research in all disciplines;
- The principal bodies active in the field of development, which include the three national pedagogical centres, the regional innovation and guidance centres, the committees for the development of curricula (relating largely to secondary education) and the Foundation for the Development of School Tests. These institutions enjoy a large measure of autonomy in planning and organising their activities.

Educational research is financed in three ways:

- via the Ministry, which finances virtually the full research budgets of university institutes and bureaux;
- via FER grants;
- via the Netherlands Organisation for the Advancement of Pure Research, which is itself financed by the central authorities.

The Ministry finances the greater part of the development work undertaken by the committees for the development of curricula and the national pedagogical centres. The regional centres for innovation and guidance are largely financed at the local level, though in recent years some have been partly financed by the Ministry.

2.2 Expenditure

"Are figures regularly available on actual or estimated total national expenditure on educational R & D? If the answer is "yes", please indicate the percentage of total educational expenditure devoted to educational R & D in 1971 and 1972"; (questionnaire).

Though some data is available, this question cannot be answered in full, owing to a lack of detailed information on the substantial amount of educational research financed from the universities' budgets and on the cost of the educational research financed by the Netherlands Organisation for the Advancement of Pure Research. Nor is it possible to indicate the percentage of the total educational expenditure devoted to educational research and development. The following table gives an approximate idea of the situation.

Funds for educational research and development (in millions of guilders)

	expenditure 1971	approved for 1972	estimate for 1973
Research projects financed via the FER	approx. 4.6	approx. 7.6	approx. 9.0
National and regional pedagogical centres (including experiment and training costs)	" 17.5	" 28.0	" 30.5
Educational experiments (1)	" 0.07	" 1.2	" 17.8
Teacher training	" 6.5	" 11.6	" 15.7
Foundation for the Development of School Tests	" 1.5	" 2.9	" 4.4
Total	" 30.2	" 51.3	" 77.4
Total budget of the Ministry of Education	" 7,550	" 8,880	" 10,067

2.3 Priorities

As stated above, the Minister delegated the financing, co-ordination and stimulation of the greater part of educational research to the FER on its establishment in 1965. Its sphere of activity has recently been extended to cover the financing and co-ordination of the research aspects of development work (see 1.2). The Board of the FER consists of representatives of educational research institutes, of the national pedagogical centres, and of one representative of the Ministry. Applications for financial assistance for research projects are assessed by the Board, which may seek the advice of external specialists. It has a considerable measure of autonomy in its decision-making and all representatives of the Ministry have the right of veto. With regard to the policy aspects of

(1) Excluding the figure for school experiments, for which the Ministry disburses large sums for extra teachers, etc.

applications and the establishment of priorities, it should be noted that the Board is aware of the importance of co-ordinating research policy with the priorities contained in the Minister's policy. The value attached by the Ministry to the stimulation of educational research is apparent from the growth of the FER budget.

Consequent upon the widening of the FER's terms of reference, its secretariat has drawn up a plan providing for the programming of research and development work relating to 4 to 16 year olds. It contains a number of recommendations to be submitted to the Minister concerning the research necessary for the innovation of Dutch education. It is the intention that this plan should provide a frame of reference for research policy by ensuring that educational research supplies fuller data for policy decisions on the future of education than has hitherto been the case.

Development is in the hands of autonomous institutions which are financially supported by the Ministry. There is no central organisation such as the FER for the co-ordination of development work, though the need for such co-ordination is becoming steadily more apparent. The Committee for Educational Experiments set up by the Ministry (see 1.2) is currently forming a Steering Group for the Development of Curricula, which will promote and co-ordinate the work of the committees for the development of curricula and advise the Minister on matters relating to planning and structure.

2.4 Dissemination of information

(a) "How is educational research information disseminated amongst researchers?

(b) How are administrators and teachers in the classroom made aware of relevant educational research findings?

(c) How is feedback from the researchers, administrators and teachers to the main educational research organisations ensured?

(d) How far is research information disseminated to the public at large and to specific groups (e.g. parents) which may be interested in the findings?" (questionnaire).

Concerning (a) and (b) see 1.7. With reference to (a), the financing of research projects via the FER is subject to reporting obligations. Copies of reports of FER-financed research projects must be forwarded to the FER, which arranges for the distribution of the findings to researchers, including the Committee for Documentation on Educational Research. With regard to (b), the national pedagogical centres and the regional centres for innovation and individual pupil guidance not only utilise research findings but also pass them on to the schools. The national and regional centres are at present studying the question of defining their areas of activity, in which context the flow of research information is also receiving attention.

As regards (c), the present feedback of this kind has been insufficient and efforts are now being made to achieve greater co-ordination between research, development and innovation. The establishment of the CEE was an important step in this direction. An improved feedback is also expected to result from the experimental innovation referred to under 1.5 above.

As for (d), see 1.7.

2.5 Impact of research on educational development and innovation

Experience has shown that educational innovation requires intensive guidance, and this cannot be provided by the national pedagogical centres. The Ministry has, therefore, embarked upon a more "active" policy with regard to the regional centres for innovation and individual pupil guidance in setting up a network of regional and local centres which will be able to

provide more intensive support for innovation in the schools. This will mean that the findings of educational research will be put into practice in the classroom.

For further information see 1.5.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

See 1.2 (the broader scope of the FER and its participation in the activities of the more recent CEE) and 2.3 (plan providing for the programming of research and development work relating to 4 to 16 year-olds). See also 1.5, referring to the preparation of a planning system for post-secondary education, which will also cover the research aspects of this type of education and may thus be expected to influence future research policy.

3.2 Intensified European co-operation

See the programme drawn up by the OECD Centre for Educational Research and Innovation (CERI).

NORWAY

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Norwegian education system which affect the role that educational research plays in it

The present stage in the development of our educational system started about 1955. Primary school, general and vocational secondary schools and teacher training have all gone through a series of reforms, which are not yet completed.

It is only fair to state that the reforms have sprung out of a political will and political agreement more than from educational or social research. In general, it may be said that the role of the researcher has been to participate with politicians and teachers in the various government committees, and more specifically to follow up the experiments designed to lead to reforms and report back to central educational authorities how these experiments function.

1.2 Co-operation between researchers and decision-makers

The first political goal was to strengthen the primary school and combine the primary school (7-14 years of age) and the various lower secondary schools (14-16 years of age) into a unified system. It was decided that we should aim at a 9-year compulsory school for all. To help implement this idea the National Council for Innovation in Education (NCIE) was established under the Law of Experiments in Schools in 1954. It was understood that this Council should keep in close contact with international and national educational research, and also commission research in special fields. The Council should report to the educational authorities and to our parliament (the Storting) every year.

Among the questions that to some extent involved research, one might mention:

- How far should the new school be centralised to give better as well as equal opportunities to all? Or more specifically: does a system of 6 years of decentralised schooling (primary education) + 3 years of centralised schooling (lower secondary education) offer the best opportunities for all?

- How does daily travel by bus, train or boat affect the pupils?

- How is a small community affected when it loses - or does not get - its own school?

- How much time should be given in the lower secondary school to general subjects and to vocational or technical subjects to make education meaningful to youngsters?

- How should the differentiation system be organised in the lower secondary school? Should the pupils be grouped together according to intellectual capacity or according to their choice of general and vocational education? Or should they not be regrouped at all on entering the last stage of compulsory education?

It seems possible that educational research might have been able to tell the educational authorities and the parliamentarians more about these questions. However, shortage of resources did not allow for this research in any depth. On the other hand it was maintained that the questions were more of a social and political character, and that the final decisions should be taken by the politicians.

After years of experiments in rural and urban districts and several debates in the Storting on the reports, the Ministry set up a committee in 1963 to propose a law introducing a 9-year school for all. The law was finally passed in 1969.

To develop a common curriculum for the new school and also new teaching material, it was found necessary to engage researchers as well as practising teachers. The common curriculum was proposed by a special committee headed by an educational researcher, and the Council for Innovation in Education engaged teachers and researchers to develop new materials (mother-tongue, foreign languages, mathematics).

As soon as it was made clear that we should have a 9-year school for all, work was started on reforming the upper secondary educational system. Again government committees were set up. It was stated that we should have a 3-year upper secondary school, open to all, giving a wide variety of choices of general, vocational and technical subjects. It was understood that a certain amount of experiments should be carried out, and that educational researchers should be commissioned to report how the new system was likely to function. A number of experimental schools were started, in urban and rural districts and of various dimensions. Researchers followed up the experiments, which included new structures, new subjects or subject-matter, new combinations of subjects, new teaching material, new methods of teaching and learning, new ways of co-operation between teacher and students. Conferences were held between practising teachers and researchers, and reports were written to the central educational authorities and the Storting, mostly giving statistical data: differential recruitment from socio-economic classes, choice of subjects, hours of work, and response to the new system. The NCIE acted on these data and adjusted plans and materials. It is now expected that the Storting will pass a law on a comprehensive upper secondary school in 1973-74.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

Please see 1.4 below.

1.4 Contribution of research to reform in the classroom

It must be noted that in addition to our law on experiments in schools some of our regular school laws include paragraphs about experiments within the school. A teacher or a school may submit proposals for innovative activities; these proposals are evaluated by the State Council for primary and secondary education, and the teacher may be granted a reduction of his teaching load to carry through such activity. These innovative activities initiated at school level have assumed considerable proportions; they have helped to develop new subjects, new teaching material and new working methods in the classroom. A number of these experiments have been carried over to other schools in the country.

1.5 Main obstacles to a greater impact of research on the classroom

No information.

1.6 Researchers and educational experiments

Please see 1.4 above.

1.7 Familiarisation of student and practising teachers with educational research

Teacher training for the former primary school (1-7 grade) lasts 2 years following a 12-year primary and secondary education. There are at present 19 training colleges in the country.

It was soon realised that the new 9-year compulsory school must lead to a strengthening of teacher training. A government committee went to work on this problem, and the training colleges submitted a number of proposals for innovative activities. It was generally understood that the training period should be lengthened to 3 years, and the problem was how - and to what extent - a specialisation in subjects should be built into the training. At present more than 70% of teacher training is done on an experimental basis, thus involving the majority of students in a certain amount of research and development work.

In 1973 the Storting passed a law on a 3-year teacher education for the 9-year compulsory school, stating that an additional fourth year of specialisation is desirable for teaching at lower secondary level.

1.8 Rationalisation and cost-saving through research

No information.

1.9 The role of educational research at post-secondary level

No information.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

In 1970 the Ministry got a state grant of one million Kr. to finance school research projects. A group of experts, representing researchers, teachers and administrators, was set up to select projects and give advice to the Minister, who takes the final decision on priorities. It was possible to initiate a number of projects. It was hoped by the group of experts that the state grant would be considerably increased over the years, thus enabling the Ministry, on the basis of its advice and of the various State Councils, to commission research for the most important parts of the high priority projects. However, it has not been possible to expand the activities yet. In 1973 the grant is 2 million Kr., and the number of ongoing projects is about 20.

Educational research, as the term has been used up to now, is what might be called applied research. It was initiated to help carry through school reforms.

Educational research is also carried out at the Universities of Oslo, Bergen and Trondheim. These universities have their own institutes of education; the personnel divides its time between teaching and research work according to certain university rules. The personnel is granted funds from the Norwegian Research Council for Science and the Humanities, set up by the government. The projects are generally academic and scientific in character, but some also bear on the actual situation in the schools.

2.2 Expenditure

It is not possible with our way of budgeting to differentiate between the amounts that are allocated to experiments and to educational research in the Councils and various government committees, and those allocated to teaching and educational research at university level.

In 1971 a total sum of about 20 million Kr. was allocated specifically to research and development in schools, and in 1972 about 28 million Kr.

In addition the institutes of education at the Universities of Oslo, Bergen and Trondheim and the Norwegian Research Council for Science and the Humanities carry out a number of educational research projects for which the money allocated cannot under the present conditions be specified.

2.3 Priorities

It may be seen from the preliminary remarks that the priority fields in educational research are determined by the reform work based on political agreement.

The overriding goal is to establish an educational system of equal opportunities for all, and to keep up the average level of intellectual and practical ability while extending educational opportunities to increasing numbers of students.

Priority fields are:

- differentiation methods - pedagogical and organisational
- integration of handicapped children in ordinary schools
- teaching material - for individualised and group work
- study guidance methods
- assessment methods
- integration of subjects into larger, more meaningful units (social science, natural science)
- combination of general, vocational and technical subjects into adequate units
- development of co-operation between all parties in the school society.

A number of research projects are identified by students, teachers and administrators and reported to the various State Councils. These Councils advise the Ministry on the priority of the projects, and a priority will be laid down in the yearly budgets. The final decision will be taken by the Storting.

2.4 Dissemination of information

University researchers publish their findings in books and periodicals; the most widely read is probably the Scandinavian Journal of Educational Research, which is published in English.

The National Council for Innovation in Education publishes three information series:

- books giving the results of commissioned work by groups of experts, the number of books now being about 30;
- reports on ongoing and completed projects written by project leaders or researchers;
- reports written by teachers participating in the various projects.

In addition the Council publishes its own periodical giving summaries and interviews.

The State Councils for primary, secondary and teacher education publish yearly reports on experiments within the schools.

The Ministry publishes a yearly report on ongoing projects financed by state grants.

The National Council presents a yearly report to the Ministry, giving research findings and summaries of project reports. The Ministry comments on these yearly reports, indicating priorities and new fields of research and development, and sends the council's report and its comments on to the Storting, where a general debate takes place once a year.

2.3 Impact of research on educational development and innovation

As may be gathered from the previous remarks, school reforms about which a general political agreement is found are prepared by government committees and preceded by a period of experimentation. Researchers are invited to take part in the work of the committees and are commissioned to follow up the experiments.

Research initiated at university level often gives rise to discussions among teachers, parents and administrators, and may lead to adjustments in curriculum, differentiation systems and evaluation methods.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

Two important measures are at present under consideration:

- Appropriate forms have to be devised for continued innovative work in schools. As in the last few years we have got - or shortly will get - new schools laws, there seems to be no need for government committees in the near future, (except one to co-ordinate teacher education in the training colleges and the universities). The function of the National Council for Innovation in Education has up till now been to initiate experiments leading to nationwide reforms. The question arises whether this Council should in the future initiate and administer the innovative activities or this responsibility should be placed with each existing State Council - for primary, secondary and teacher education. No decision has yet been taken.

- In a country with limited resources and few researchers, it seems evident that a co-ordination of educational research efforts is necessary. The Norwegian Research Council for Science and the Humanities set up an expert group in 1967 to deal with this problem, and a proposal was submitted in 1968. Up till now no decision has been taken to co-ordinate educational research efforts on a governmental level (see para. 2.1).

3.2 Intensified European co-operation

It goes without saying that the Ministry is interested in intensified European co-operation in this field.

Priority areas would be:

- Pre-school education,

- Integration of handicapped children into the primary and secondary schools,

- Adult education,

- The management of innovation in schools.

Procedures:

- Exchange of information and documentation

- Exchange of researchers,

- International working groups, symposia, etc.

SPAIN

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Spanish education system which affect the role that educational research plays in it

The Educational Science Institutes (Institutos de Ciencias de la Educación), co-ordinated through the National Research Centre for the Development of Education (Centro Nacional de Investigaciones para el Desarrollo de la Educación), are proof of the important position occupied by educational research in the Spanish system of education. The functions of the Institutes, of which there is one in every university, are set out in Decree 1678/1969 of 24 July 1969 (Article 2) as follows:

"- initial training of teachers after their university studies and in-service training of teachers in the schools;

- active participation in educational research;

- counselling on educational problems, whether pedagogical in the strict sense, or of a more general nature (social, economic, etc.)"

Article 6 of the same Decree states that: "In order to ensure co-ordination at the highest level, allowing the Educational Science Institutes to set up a co-ordinated research programme covering all levels of the education system and providing for the dissemination of findings, and in order to encourage a constant renewal in educational methods, a National Research Centre for the Development of Education shall be set up."

The Order of 28 November 1969, Article 1, states the functions of the National Research Centre to be:

"- to co-ordinate the research projects of the Educational Science Institutes by drawing up a national plan for research on the development of education, in order to avoid duplication of work and to establish a list of priorities;

- to organise and carry out such research as would not normally be undertaken by the Educational Science Institutes;

- to organise the training and further training of the teaching staff of the Educational Science Institutes;

- in a general way, to co-ordinate the scientific work of the Educational Science Institutes and to circulate their research findings."

1.2 Co-operation between researchers and decision-makers

The close collaboration existing between researchers and decision-makers in educational matters can be clearly seen from the composition of the Executive Council of the National Research Centre for the Development of Education (Order of 28 November 1969, Article 2):

"A Chairman, appointed by the Minister of Education and Science;

The Directors of the Educational Science Institutes, representing the Rectors of their respective universities;

One representative from the Technical Secretariat and one from each of the Directorates: Higher Education and Research, Intermediate and Vocational Education and Primary Education;

The Director of the Office for the Evaluation of Audio-visual Aids and Methods;

A maximum of ten additional members, appointed by the Minister of Education and Science from among specialists in fields relevant to the activities of the Centre."

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

Participation is an essential feature of the Spanish Education Reform, and plays a cardinal role in the Educational Science Institutes. These Institutes are open to teachers at all levels and in every field, whether in private or public education, as well as to all students and to everyone interested in education.

Furthermore, the Law on Education and the Financing of the Educational Reform provides, in Article 143.3, that: "inspectors shall be required to attend special refresher courses at Educational Science Institutes at least once every three years". The inspectors, who play an important part in briefing practising teachers, are thus kept up to date with the latest findings in educational research.

1.4 Contribution of research to reform in the classroom

Educational research clearly leads to a renewal in educational methods, for instance the individualised teaching at present affecting hundreds of thousands of Spanish pupils.

1.5 Main obstacles to a greater impact of research on the classroom

Amongst the obstacles preventing research from having a greater impact on the classroom may be mentioned:

- the unduly limited circulation still given to research findings;
- the attitude of teachers, who are sometimes resistant to changes in traditional teaching methods;
- administrative difficulties - delay in supplying means and legislative texts.

1.6 Researchers and educational experiments

The Educational Science Institutes, which exist in every Spanish university, are concerned, at the regional level, with educational research and with the training and further training of teachers. Experiments to evaluate new methods, research, etc., are carried out in pilot centres, experimental centres and ordinary centres which have been assigned specific experiments.

The role of these centres is laid down in Decree 2481/1970 of 22 August and by the Order of 30 September 1970. In the latter it is stated that "educational experiments will be conducted by pilot centres, by experimental centres and by ordinary centres authorised to draw up specific programmes". The pilot centres are directly attached to an Educational Science Institute and try out organisational structures and teaching methods; the experimental centres are pedagogical centres listed as such under the aegis of an Educational Science Institute.

At present, there are seven pilot and experimental centres; moreover, every syllabus of the educational reform is tried out in approximately 600 centres every year before being put into general use.

1.7 Familiarisation of student and practising teachers with educational research

The inspectors in each university district play an important part in keeping teachers up to date with educational research activities. In addition, there are pedagogical collaboration centres for primary teachers, and teacher training courses at the Educational Science Institutes.

1.8 Rationalisation and cost saving through research

It is not yet possible to estimate the extent to which educational research has contributed to cost saving in education since this is still being investigated.

1.9 The role of educational research at the post-secondary level

At the post-secondary level, the traditional system of education is still followed. A complete reform at this level will not come about before 1978. However, the syllabuses will always be tried out before being generally introduced throughout the system, as was done with the university orientation course. The first experimental syllabuses are also beginning in the new University Schools this year.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

Recent provisions give educational planning a national character. Under the Third Economic and Social Development Plan (1972-1975), an education board is responsible for educational planning at the national level. At the ministerial level, there are planning boards within the Directorate of Programming and Investment, on which all sectors of national society (social, economic, cultural, etc.) are represented. Similar boards exist at the provincial level.

2.2 Expenditure

As we have already said, educational research is mainly concentrated in the Educational Science Institutes and in the National Research Centre for the Development of Education; but it is also carried out in the "San José de Calasanz" Institute, which is attached to the Central Council for Scientific Research, and in the education departments of the universities.

Two national research plans for the development of education have so far been drawn up within the network of Institutes and the Centre. The first plan, comprising 43 research projects, was allocated a budget of 59,582,800 pesetas. The second plan, now in operation, comprises 53 projects with a total budget of 71,754,000 pesetas.

Nineteen fellowships to a total value of 4,560,000 pesetas were awarded in 1970, and 18 fellowships totalling 4,320,000 pesetas in 1971, for research into education in the universities.

2.3 Priorities

It can be seen from the educational research projects listed in the second national plan which fields are given priority. The Educational Science Institutes choose their own research topics, but priority is normally given to subjects dealing with the Education Reform.

2.4 Dissemination of information

The Educational Science Institutes publish their educational research findings. These publications can be consulted in the Institutes and in the National Research Centre for the Development of Education. The same applies to research work carried out by university education departments.

With a view to securing a wider circulation for the results of the research carried out under the first national plan (1970-71), a series of seminars on the application of research to reform (Séminário de Aplicación de las Investigaciones de la Reforma) was held in 1972 at the National Research Centre for the Development of Education. The teaching staff of the Educational Science Institutes attended these seminars throughout the year and in their turn passed on the research findings to the teachers undergoing training in their own university districts.

2.5 Impact of research on educational development and innovation

The Law on Education and the Financing of the Education Reform conceives the education system as open to new ideas and capable of self-adjustment. Research and experimentation are the means of this self-adjustment. This is the reason for the establishment of pilot centres and experimental centres where new educational methods are tried out prior to their general introduction into the education system.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

No radical changes in the present educational policy are envisaged at present, since only the first stage in the application of the Education Law has been reached and it is hoped that, carried to its logical conclusion, this law will satisfy the most exacting demands. To this end, it is intended to increase the number of projects, to ensure the participation of teachers in the various stages of research (preparation, experimentation, dissemination) and to introduce, within the framework of the reform, the new teaching methods which will undoubtedly stem from the research activity.

3.2 Intensified European co-operation

Contacts among educational research centres and increased exchanges of information on similar projects drawn up by international organisations would be important forms of co-operation.

From among the main research topics the following subjects may be mentioned:

- innovations in schools corresponding to the new demands of society, especially in the matter of the relationship between national socio-economic needs and the education system;
- teacher training;
- permanent education;
- effectiveness of educational technology.

SWEDEN

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Swedish education system which affect the role that educational research plays in it

Educational research in Sweden has been of great significance in the last decades. It has also acquired such proportions that Sweden now bears comparison with the largest West European countries.

At the same time the Swedish educational system has been basically changed. The reforms have been so extensive that there is today hardly anything left of the 1940 educational organisation. The main changes are as follows:

- Compulsory school has been prolonged to 9 years for all, including lower secondary school for all.
- The system of parallel schools has been replaced by a unified school system in all areas.
- Division into streams has been deferred from the age of 11 to the age of 16, i.e., until after completion of compulsory school.
- Upper secondary school for pupils aged 16-19 years ("gymnasial school") is now available to practically all pupils. About 80 per cent of all children up to 18 years of age now go to school.
- Different streams within upper secondary school (academic, vocational, technical, etc.) have been co-ordinated within a uniform organisation with the possibility of combining theoretical and practical subjects and of changing line and subjects.
- More than one-third of pupils now go on to university and higher education.
- Teacher training has been almost totally reorganised. Since 1968 different teacher categories have been trained at schools of education, at which educational research also takes place.

The reforms continue on an undiminished scale. The chief priorities at present are higher education, adult education and pre-primary schooling.

1.2 Co-operation between researchers and decision-makers

What has been the role of educational research in these changes? It is not altogether correct to maintain, as has sometimes been done, that the educational reforms in Sweden have been based on the results of educational research. They are essentially the result of a series of political decisions, in which social and economic goals have been as important - or more important - than purely educational goals. A characteristic feature in Sweden has been the regular exchange of ideas and discussions between politicians, administrators, teachers and researchers. They have worked together in government committees. Researchers have been

members of expert groups. They have carried out investigations for central educational authorities and assisted in special studies within the 12-year trial which preceded the 1962 decision of parliament concerning comprehensive school. As from 1962 the central educational authority has received annual grants for R & D. Universities and higher educational establishments have also received grants since 1969. These grants now form the basis for the greater part of Swedish educational research, mostly in the form of applied research. The costs of basic educational and other behavioural research are met from other funds.

In the last decades, accordingly, the educational research discussed below has been built into the educational system as a whole. It includes discipline-oriented as well as policy-oriented research. It is to a large extent commissioned research, but the choice and form of the commissions are decided on in consultation with the researchers themselves.

A brief summary follows of the activities in which researchers and policy-makers have collaborated in recent years.

Innovative schools 1950 - 1962

In 1950 the Swedish Riksdag (parliament) passed a resolution in favour of the introduction throughout the country of a completely new school system. Primary schools together with the various kinds of lower secondary schools and intermediate schools were to be amalgamated to form a new nine-year compulsory school. No immediate final decision was taken, however, concerning the detailed structure of this new school. Instead it was decided to begin with an experimental period of about ten years, with a view, among other things, to studying more closely this problem, together with the differentiation and specialization of pupils.

This decision had been preceded by extremely thorough investigations by government committees which included not only politicians but teachers, school administrators and researchers.

The rate at which these innovative schools were introduced can be seen from the following tables:

School year	1950 - 51	7,529	students
	1951 - 52	14,635	"
	1952 - 53	27,725	"
	1953 - 54	35,784	"
	1954 - 55	61,498	"
	1955 - 56	84,941	"
	1956 - 57	109,694	"
	1957 - 58	143,370	"
	1958 - 59	196,343	"
	1959 - 60	268,940	"
	1960 - 61	333,094	"
	1961 - 62	436,595	"

By the end of the twelve-year experimental period, in 1962, half the municipalities in the country had adopted the nine-year undifferentiated system. This transition continued until 1968-69, when the last municipality adopted the new system. By the end of the school year 1971-72 all older forms of elementary schools, junior secondary schools, municipal girls schools and other kinds of lower secondary school had been abolished and replaced by the new nine-year comprehensive school.

It would be hard to overstate the importance of the experimental schools. They provided a twelve-year period of adjustment during which the new school could be discussed and evaluated. Without this experimental activity there would never have been such a degree of unanimity concerning the 1962 resolution in favour of the abolition of the parallel school system and the introduction of the comprehensive school throughout the country. The experimental schools reported their experiences to the Board of Education year by year and these experiences were made the subject of an annual discussion in the Riksdag. The experimental schools made it possible to achieve among other things the following:

- a lively and sustained educational debate between politicans and professionals, including teachers,
- the combination of primary and secondary school teachers in single teams under the same leadership with both vertical and longitudinal co-ordination of the educational programmes,
- a corresponding co-operation between different kinds of secondary school teachers, i.e. teachers of academic, vocational and other non-theoretical subjects,
- the introduction in the school as a whole of a system of special guidance teachers together with free study option for the pupils,
- the abolition of the examination system in favour of a uniform system of continuous evaluation,
- the introduction of obligatory, organised co-operation between teachers and other school officers in the form of subject conferences, class conferences, conferences for whole levels of a school, etc.,
- an intensification of the work, above all by teachers, on developing objectives, means and methods for teaching, especially with a view to coping with structural heterogeneity in the new pupil groups.

This enumeration of innovations could continue by recounting a long series of measures for improving the working conditions of the experimental schools, e.g. the creation of new school regions and the co-ordination of different schools and levels, measures to improve the basic and further training of teachers, the introduction of free educational materials, the school health service, school dental service, school meals, transport services for pupils, etc. One could also mention a long series of secondary reforms affecting the upper secondary sector, vocational education, teacher training and other branches of higher education, but we shall not deal here with these or other matters relating to the school reform in general.

Innovative activities at senior schools

The organisational experimentation outlined above was accompanied during the period 1951-1962 by comprehensive educational experiments within the existing school system. These were conducted at the gymnasiums, at junior secondary schools of various kinds and at municipal girls schools, i.e., lower secondary schools belonging to the earlier school system which were due to be superseded by the new comprehensive school as a result of the school reform.

Every year during the 1950s the Board of Education invited the headmasters of the secondary schools within its jurisdiction to take part in experimental activities. A number of experimental projects were specified in these invitations. Schools enrolling in the experimental scheme also submitted proposals of their own. These proposals were co-ordinated and modified to a certain extent in consultation with the Board of Education. These innovative activities came to assume

considerable proportions. During the first year alone, 165 of the 354 schools in the country applied for such innovative activities, of which 106 were supported by the Board of Education. An unflagging interest was maintained until the final resolution concerning the comprehensive school was adopted by the Riksdag in 1962, after which this form of innovative activity was discontinued and succeeded by other forms of innovation.

It is impossible to specify how many different experiments were involved in these activities The majority of them may be divided into three sectors:

- organisational experiments, including experiments with lower and upper secondary correspondence schools as well as experiments concerning a special examination for junior secondary schools and municipal girls schools,

- experiments concerning teaching methods in literary and library studies, public speaking, mathematics for Latinists, etc., together with

- social activities in the form of class periods, school periods, freely selected work, etc.

Annual reports on their activities were sent by the innovative schools to the Board of Education, whose own report to the Ministry of Education was included in the government's annual budget proposals to the Riksdag concerning appropriations for continued experimental activities. During the period 1951-1962 the State contributed nearly Kr. 3 million to the extra expenditure entailed by innovative activities, of which Kr. 500,000 for a reduction in the number of periods taught by teachers involved in these activities. Nearly 400 schools were continuously participating in these developmental activities during the period 1951-1961.

The Board of Education, which was responsible for the central management of these activities, gradually came to feel the need for a more definitive organisation together with a more specific experimental programme. Certain clearly defined and systematic experiments concerning the reform of the internal work of the upper secondary school were therefore concentrated on seven secondary schools during the period 1958-1962. One of these schools was a private boarding school. The spontaneous experimentation of previous years continued side by side with these systematic experiments.

The activities conducted at the special innovative schools were definitely of great importance to the development of their internal work, but the experiments were inhibited by the fact that these schools were forced throughout the entire period to abide by the original regulations concerning final examinations, a factor which, understandably enough, made teachers less disposed to take risks by embarking on advanced experiments. As a result these experiments had less influence on school planning than did the organisational experimentation with the nine-year comprehensive school described in the previous section.

Research and development projects at institutes of educational research

When the experimental activities with the nine-year comprehensive school were concluded in 1962, appropriate forms had to be devised for continued innovative work. This was the origin of the educational research and development work directed centrally by the National Board of Education. This work has been initiated by the different bureaux of the Board and by the institutes of educational research at universities and schools of education. It takes the form of commissioned research, with budgets and time-tables drawn up by the National Board of Education and the relevant research institution. The annual allocations for this research and development work have risen successively and amount to Kr. 12 million for 1972-73.

Most of this research and development work is done at the institutes of behavioural sciences at the schools of education and universities. The projects range from basic to applied research. Projects of particular interest for present purposes are concerned with the development of methods and materials systems, since these entail the engagement of a considerable number of schools and classes for controlled experiments and active development work. These schools and classes have played an important part in innovation activities and in the involvement of teachers. The schools and classes involved are not to be regarded as permanent innovative schools, their innovative activities being of a temporary and specific kind. In some projects the numbers of classes and teachers involved have been considerable.

Research projects in 1972-73 are distributed between the following institutes:

Schools of education

Gothenburg	9 projects
Linköping	6 "
Malmö	11 "
Stockholm	6 "
Umeå	5 "
Uppsala	8 "

Universities

Gothenburg (education)	4 projects
Lund (education)	3 "
Stockholm (international education)	1 "
Uppsala (education)	1 "
Stockholm (psychology)	1 "
Lund (sociology)	1 "

Education Research Centre

Stockholm	1 "
	57 projects

These 57 projects represent only actual research. To these may be added a large number of development projects.

Experimental education areas

We have already noted that the educational research and development work centrally administered by the National Board of Education may be seen as a direct continuation of the various forms of innovative activity of the experimental period 1950-62. Most of this development work was delegated to the educational research institutes of universities and schools of education. Another form of development work, also a legacy from the 1950-62 experimental period, is represented by the experimental education areas. Although these areas have been initiated centrally by the National Board of Education, the direct responsibility for their activities has always rested with individual municipalities and schools or groups of municipalities and schools. The following experimental education areas have existed to date, carrying out the experiments listed:

Kalmar (1965)

- Developing communication skills in comprehensive schools and in the various forms of upper secondary school.

- Experiments with the applied training of skills in Swedish.
- Experiments with successive admission and individualised instruction in vocational schools
- Experiments with teaching materials.
- The conference as an educational forum

Karlstad (1965)

- Nature studies at the lower level of comprehensive school.
- Laboratory work in physics.
- Practical vocational guidance.
- Closed circuit television in the teaching of civics.
- Materials production and teacher collaboration in upper secondary school Swedish.
- Upper secondary school biology without textbooks.
- Upper secondary school civics without homework.

Malmö (1964)

- Teaching with closed circuit television,
- Variable group sizes and team instruction.
- Reinforced individualisation in grades 7-9 of comprehensive school.
- Linear programme in study techniques.
- Pupil participation in teaching.
- New methods of pre-school training and lower level primary school teaching.
- Experiments with increased pupil participation in comprehensive school.
- Flexible pupil grouping.
- Extended teaching periods.
- "Homework" in schools.
- Teachers' assistants.
- Revision of practical vocational guidance.

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Sundsvall (1969)

- Greater pupil participation in the planning of teaching.
- Individualisation and laboratory work in upper secondary school.
- Upper secondary school history without homework.
- Pedagogical-organisational experiments in the training of teachers' assistants.
- Reconstruction of upper secondary school buildings.

Uppsala (1969)

- Experiments with improved pupil welfare and study environment through parent participation, observation programme regarding changes of course and disciplinary measures.

Västerås (1971)

- Experiments with advanced interdisciplinary planning and teaching.

The dates in brackets refer to the inauguration of the experimental areas. The enumeration of innovative activities is not exhaustive. Moreover the experiments mentioned represent comprehensive programmes rather than individual projects. Thus the Malmö project concerning variable group sizes and team instruction comprises no less than ten separate sub-projects.

The model for the experimental educational areas was designed by the National Board of Education.

In general, research policy is decided in collaboration between the principals and the researchers. The principals are in most cases central education authorities or government committees and commissions of enquiry. To a lesser extent they are also local or regional authorities. In the former case there has been a relatively large measure of co-operation through the fact that the large committees which drew up the educational reforms have had a research secretariat (e.g. Schools Drafting Committee, Upper-Secondary Schools Commission, and the 1968 Educational Commission).

As regards the authorities' contribution to research it may be said that research policy is formulated by the boards of the authorities on the recommendation of various drafting committees within and associated with the authorities. Reports and investigations on behalf of the authorities are submitted and carried out by researchers on special questions, e.g. in conjunction with symposia, drawing up of curricula, and questions submitted to them for consideration.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

Researchers collaborate with these groups in the field phase of research projects. Researchers and research institutes also participate in local educational development in "development blocks". Examples are the development blocks in Uppsala, Västerås and Sundsvall, which are assisted by researchers from the educational research institutes of the respective universities or from the corresponding institute at the School of Education at Uppsala.

Local collaboration between teachers and researchers occurs within higher education through educational development units at universities and higher educational establishments, the educational consultants at which function as a link between educational researchers and teachers.

1.4 Contribution of research to reform in the classroom

The R & D conducted by educational authorities has precisely this point as its aim. Only a few examples can be given here.

Pre-primary school: various pre-primary project groups have

- designed materials and methods for development of social, cognitive and linguistic abilities;

- designed and evaluated models for collaboration between pre-primary school and junior level.

Comprehensive school: various curricular project groups have made contributions concerning the teaching of languages, mathematics, elementary civics, etc.

Upper secondary school: the studies and follow-up carried out by the Upper Secondary Schools Commission on upper secondary school pupils have had an influence on the upper secondary school curriculum and on revisions of it.

Higher education: research on admissions has had an influence on proposals concerning new and revised educational planning.

1.5 Major obstacles to a greater impact of research on the classroom

The organisational factors in education, e.g. the fixed organisation of teaching staff and, in general, the system of rules within education, not least in respect of allocation of teachers and other resources, have been obstructions.

1.6 Researchers and educational experiments

See 1.4.

1.7 Familiarisation of student and practising teachers with educational research

Teachers are informed of the results of educational research through both teacher training and refresher courses. By way of example, new educational research is an element in the teaching of pedagogics and methods in the basic course for class teachers and subject teachers. New research projects are presented at the School of Education (in Stockholm), among other means through closed-circuit television and printed workbooks.

New institutes for teacher training, called schools of education, were set up during the 1950s and 1960s as a result of the school reforms at primary and secondary levels. These schools differ from earlier kinds of teacher training schools in that, among other things, primary and secondary school teachers are trained within the same organisation. The schools of education are also responsible for the bulk of educational research in Sweden.

There are at present 15 schools of education. Each has what is termed an experimental and demonstration school which may be said to constitute a special form of innovative school. These experimental and demonstration schools differ from ordinary schools in that they do not form an independent school but consist of a collection of regular school classes within the municipal schools in the locality where the school of education is situated.

The object of the experiments is to inculcate in trainee teachers an inquiring and analytical attitude to educational problems. The demonstrations are concerned with limited problems of applied methodology, e.g. how to deal with the same section of a course when teaching younger and older pupils, pupils of superior or inferior ability, etc.

1.8 Rationalisation and cost saving through research

No profitability calculations have been made. It is nevertheless clear that greater efficiency has been attained without increase in cost, and that in some fields there has been a cost saving.

1.9 The role of educational research at post-secondary level

The Office of the Chancellor of the Universities, which is responsible for higher education, conducts its own R & D. It has an R & D Bureau with three sections, one for Research Projects, one for Development, and one for Continued Teacher Training and Staff Training. Furthermore committees and commissions engaged on higher education have carried out brief research programmes of their own.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The Social Science Research Council and the Bank of Sweden Jubilee Fund support and finance research in education and psychology, but do not initiate research.

The Office of the Chancellor of the Universities is responsible for the initiation, planning and financing of research concerning higher education.

Research surveys are drawn up concerning central problems and are discussed by researchers and planners. The results of these discussions are further considered by the educational authorities in order to pinpoint the questions on which new R & D is needed.

The Board of Education is responsible for the initiation, planning, co-ordination and financing of research within the school system. For each sector (pre-primary, comprehensive, upper secondary school, adult education and teacher training) there are programme groups with representatives of the bureaux of the Board of Education which are responsible for the respective sectors. The planning of new projects is also based on symposia of researchers and school personnel of various categories and on written surveys of problems encountered by different parties within the school system.

The Board of Education has an advisory group, the Educational Committee, for questions relating to educational R & D. Its members are appointed by the Crown.

2.2 Expenditure

Expenditure on educational research relating to staff and administration is estimated to be roughly as follows for the year indicated (in millions of kroner), not including the basic research resources of the schools of education and universities.

Chancellor of the Universities (R & D projects)	5.25 mkr	(1972/73)
Board of Education	" 11.9	" "
Bank of Sweden Fund	" 1.49	" (1971)
Social Science Research Council	" 1.70	" (1971)

To this should be added other expenditure directly relating to such research. Government grants for experimental and demonstration schools amount to about 18 mkr. Refresher courses for teachers receive government grants of about 40 mkr, largely for dissemination of R & D results. There is also the cost of continued teacher training borne by local government authorities, amounting to considerably more than 100 mkr per annum. Research committees (e.g. the Commission on Working Conditions at Schools, the Committee for Television and Radio in Education) receive 20 mkr per annum, and the Swedish Broadcasting Corporation the same amount for development work. It has not been possible to estimate other costs of local government authorities (e.g. "development blocks", etc.).

The total cost of educational research may be estimated at around 225 mkr.

2.3 Priorities

The priorities within higher education are: organisation of higher education and its association with the labour market; teaching organisation, methods and evaluation.

The priorities within the school system are: handicapped and backward groups, pre-primary schools, adult education, vocational education research, and working conditions at schools.

The Social Science Research Council has given priority to social psychology and development psychology, adult education research, mass communication, and working environment research.

Priorities are laid down by the government and Riksdag, in connection with the drafting of the budget, and by the education authorities. Priorities within the school system are also specified by the Educational Committee and Programme Groups of the Board of Education, and through surveys of problems by various educational organisations, e.g., teachers' organisations, school psychologists, etc.

Among measures for implementing of priorities are, by way of example, the earmarking of certain funds for adult education R & D and for educational documentation. A special development grant for higher education and for schooling is in itself a measure relating to the reform of education.

These measures have resulted in extensive research and development, serving the needs both of higher education and of schooling.

2.4 Dissemination of information

Educational research information is disseminated:

- to other researchers, through reports, periodicals, conferences, project seminars and symposia.
- to administrators and teachers, through printed information (abstracts, books, mass media and trade press, especially educational press, through teacher training and refresher courses).

Feedback to the planning authority is obtained through extensive written communication and personal contacts by means of which the central educational authorities are informed of the results and experience gained within education R & D. The researchers present their results and their projects to the appropriate officials of the respective authorities. Measures and other proposals arising out of the researchers' results are jointly discussed.

2.5 Impact of research on educational development and innovation

For strategies for implementing research results, see also the last paragraph in 2.4 above.

Two main strategies are adopted, the R & D model and the problem solution model.

The first implies that the renewal process consists of a chain of steps from applied research through development and evaluation of prototypes to production, distribution and application of learning systems. This model has been called in Sweden the methods-materials system model and has been applied to certain curriculum-directed projects (teaching of mathematics, German, teaching of the deaf, etc.).

The problem solution model is based on the need felt for renewal by the users. Its assumption is that the user can and should identify the problems and, with the researcher's assistance, make diagnoses and collect the necessary information for a solution; on this basis a solution is worked out and subsequently tested and applied.

According to Swedish experience the models should be combined so as to yield the optimum overall effect.

One of the principal results of Swedish experience has been to show that continued teacher training has been directed excessively to subject content. It should be more closely co-ordinated with R & D so that self-renewal through personal engagement in development work becomes the natural form for the continued training of teachers.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

Government research policy remains unchanged; the government is systematically, in one social sector after another, making use of applied research in an attempt to develop the sectors on the basis of the goals applying to each. "It is more important that each minister and head of department should attempt to extend the applied research within his sector than that one minister supervises the question for all departments and all spheres" (Sven Moberg in "Social goals and research priorities", 1972).

3.2 Intensified European co-operation

Priority should be given to the following fields:

- exchange of information and documentation within the international organs with which Sweden has contact,
- exchange of researchers for participation in projects (including also some training of researchers),
- international conferences via national case studies arranged on a common pattern and examined and evaluated: e.g. comparisons of innovation strategies within education.

SWITZERLAND

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Swiss education system which affect the role that educational research plays in it

In the field of education, the federal constitution allots most of the powers to the cantons. This is the case for primary, secondary and university education - hence the importance of the part played by cantonal and intercantonal bodies in educational research. However, the Confederation is responsible for the two polytechnics, vocational training and the teaching of physical education and sport. There has also been in recent years a steady increase in its responsibilities in the field of scientific research and hence also of educational research.

Cantonal bodies

In the cantonal context, educational research is undertaken by:

- The universities of Bâle, Bern, Fribourg, Geneva, Lausanne, Neuchâtel and Zurich, and also the Ecole des Hautes Etudes économiques et sociales at St. Gallen. To be more precise, it is the education, psychology and sociology departments of these universities which are working in this field.

- The cantonal centres set up by the Directorate of Education (and sometimes the Directorate of Public Economy) which are concerned with planning, statistics and research, most often in the field of school innovation.

- Cantonal or local boards instructed to study specific school reforms.

Intercantonal bodies

These may function on either a national or a regional basis.

- At the national level, educational research is the province of two important institutions - the Conférence universitaire suisse (Conference of Swiss Universities) and the Conférence suisse des directeurs cantonaux de l'instruction publique - CDIP (Conference of Cantonal Directors of Education) - which conduct educational research through the intermediary of certain committees, usually composed of experts. Among the subjects they have studied or are studying are:

  . Training of upper secondary schools teachers;

  . The future of secondary education;

  . Training of teachers for the compulsory education stage of the future;

  . New mathematics teaching and the reform of the early teaching of the second national language.

Further, in 1972 the CDIP set up a permanent "Pedagogical Committee" - which is concerned with the revision of curricula and methods, with a view to possible improved co-ordination. Mention should also be made of the special role played by the Centre for the Co-ordination of Educational Research, set up by the CDIP in 1971 (Aarau).

- At the regional level, cantons sometimes combine to set up institutions or to form committees for educational research or reform. French-speaking Switzerland has the distinction of having founded in 1970 the Institut romand de recherches et de documentation pédagogiques (Neuchâtel).

Federal bodies

Such federal bodies as deal with educational research - for the most part in sporadic fashion - operate within the following framework:

under the Federal Department of the Interior:

- specialised institutes of the federal polytechnics at Zurich and Lausanne;
- the Science and Research Division and the Swiss Science Council;
- the Federal Bureau of Statistics (Cultural Affairs Section);

under the Federal Department of Public Economy:

- the Federal Office for Industry, Arts and Crafts and Employment, through its vocational training subdivision and more especially through the Swiss Institute for Vocational Training, set up in 1972;
- the Agriculture Division;

under the Federal Political Department:

- the Scientific Affairs and Cultural Affairs Sections

under the Federal Military Department:

- the Federal School of Physical Training and Sport; Research and Teaching Sections;

and the following federal commissions:

- federal Commission for the Upper Secondary School Leaving Certificate (Maturité);
- Swiss National Commission for UNESCO;
- commission for Technical Co-operation;
- commission for the Promotion of Scientific Research.

The predominance of the cantonal and intercantonal bodies over federal initiatives arises from the fact that in Switzerland, educational research is largely carried out in university institutes, which are cantonal, or in centres attached to the cantonal Directorates of Education, or in intercantonal centres, or else under the auspices of cantonal or regional expert committees.

1.2 Co-operation between researchers and decision-makers

The importance given to educational experiments and their increasing number have brought researchers into closer contact with teachers and decision-makers. The resulting teamwork has acted as a great stimulus to those involved in the experiments, who in turn have been better able to point out their value to others.

A system of educational research thus oriented towards direct application to teaching, and in which theorists co-operate with practitioners and administrators, is in a good position to secure the support of a very wide range of bodies. This is all the more necessary since the financial situation at the municipal, cantonal and federal levels has become increasingly difficult over the last four years, at the very time when educational research is developing gratifyingly but still needing a few years of strong support.

Nevertheless, federal and cantonal authorities alike have shown themselves in recent years very determined to step up research in the educational field. The Confederation expressed itself clearly on this subject in the Federal Council message to the Federal Assembly concerning new constitutional articles of 19 January 1972 dealing with education and research: "In view of the considerable effort needed to reform the education system in Switzerland, it is apparent already that there must be an intensification of educational research with a practical bias." For its part, the Swiss Science Council, as a result of its enquiry into the priority needs in research, noted that in Switzerland: "there are a number of disciplines and scientific areas which urgently need to be encouraged and developed generally. Those in question are particularly disciplines in the educational and social sciences, and also the information sciences, especially documentation and data-processing."

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

School authorities are calling increasingly upon specialised educational research services to help plan education reforms for large towns, cantons or regions. These researchers co-operate with cantonal centres for educational planning and research, where such exist. The cantons where this policy has been successfully adopted include Bern, Fribourg, Geneva, Lucerne, St. Gallen, Schwyz, Soleure, Vaud, Zoug and Zurich. Quite often researchers and authorities work together through the intermediary of expert committees, which also occasionally carry out educational research themselves.

There has also been an increasing realisation in Switzerland of the need to carry out experiments on a small scale, in scientifically controlled conditions, before introducing any changes generally. In this way, researchers are now collaborating on a more systematic basis than previously in official experiments, some of which are very innovatory. This teamwork between theorists and practitioners is advantageous to both parties, and helps the authorities as much as it helps pupils and parents, who see in this close co-operation an additional assurance of the success of educational reform.

1.4 Contribution of research to reform in the classroom

No information.

1.5 Main obstacles to a greater impact of research on the classroom

No information.

1.6 Researchers and educational experiments

Please see Section 1.3.

1.7 Familiarisation of student and practising teachers with educational research

No information.

1.8 Rationalisation and cost-saving through research

No information.

1.9 The rôle of research at post-secondary level

No information.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The cantons have made admirable strides in developing the existing research centres under their Directorates of Education, Public Economy etc., or in their universities, as well as setting up new ones. In addition, by joining forces, they have been able, through the intermediary of the Conference of Cantonal Ministers of Education, to act to some effect on regional and national fronts.

In recent years, all cantonal centres have received increased funds to further their research and twelve new centres have been set up in the last four years; this brings the number of cantonal centres up to 45. The centres opened in and since 1969 are as follows:

1969:

- Dissertandenseminar über Probleme der betrieblichen Ausbildung an der Hochschule St. Gallen;
- Forschungsabteilung für Bildungs- und Begabungsfragen des Psychologisches Instituts der Universität Bern;
- Pädagogische Arbeitsstelle des Kantons St. Gallen.

1970:

- Institut für Bildungsforschung und Berufspädagogik im Amt für Berufsbildung des Kantons Zürich;
- Hochschule für Bildungswissenschaften, Vorbereitungsstufe, Aarau.

1971:

- Abteilung Pädagogische Psychologie der Universität Bern;
- Institut für Ausbildungs- und Examensforschung an der Medizinischen Fakultät der Universität Bern;
- Institut für Wirtschaftspädagogik an der Hochschule St. Gallen;

- Pädagogische Abteilung der Erziehungsdirektion des Kantons Zürich;

- Office de recherche et de planification en matière d'enseignement, Berne;

- Creation of a post of pedagogical adviser, Valais.

1972:

- Amt für Unterrichtsforschung und Unterrichtsplanung der Erziehungsdirektion des Kantons Bern;

- Centre de recherches et de documentation pédagogiques du canton de Fribourg.

The intercantonal bodies have also moved ahead in this area, with the Conference of Cantonal Directors of Education setting up in 1971 the Centre for Co-ordination of Educational Research and in 1972 the Pedagogical Commission, whose function is to promote intercantonal co-ordination through reforms, a task which implies a measure of educational research. In addition to this, the CDIP supports several committees whose function is to draw up reports regarding changes needed in school structures, teaching methods, initial and post-initial training of teachers. At the regional level, the cantons have also pooled their resources in order to promote co-ordination through research. This applies especially to the Conference of the Heads of Department for Education in French-speaking Switzerland and in the Ticino, which set up in 1970 the Institut romand de recherches et de documentation pédagogiques where there is a research department.

It is gratifying to note that of the fifty educational research centres currently operating in Switzerland, fifteen have been set up in the last four years. This, together with the strengthening of those centres already in operation, means that the number of researchers has doubled since 1969, when they numbered only about 40 full-time and 150 part-time.

2.2 Expenditure

Simultaneously, there has been great progress in the financing of educational research, with the National Scientific Research Fund giving in 1972 grants and subsidies totalling 1,895,285 francs.

For other financial help, from federal, cantonal, municipal and private sources, no exact figures can be given, but it is estimated that it amounts to four times that from the National Fund. During 1972, therefore, Switzerland spent approximately 10 million francs on educational research, for more than double the expenditure in 1969.

2.3 Priorities

Although priorities are established on the one hand by a federal body and on the other by an intercantonal body, according to circumstances, they nevertheless overlap to some extent.

The Swiss Science Council (after an enquiry carried out between 1970 and 1972 on the "Determination of urgent areas for research in Switzerland") was able to establish a list of priorities for educational research:

- Pre-school education;

- Teaching and learning processes, particularly with regard to mathematics and the second national language;

- Introduction of new curricula;

- Organisation and planning of education;
- Vocational training;
- Adult education;
- Education of physically and mentally handicapped children and adults.

The Pedagogical Committee of the Conference of Cantonal Directors of Education drew up in 1973 its own list of priority areas which should be studied by expert sub-committees with a view to better national co-ordination:

- Teaching of mathematics during the period of compulsory schooling;
- Early teaching of a second national language;
- Further training of teachers;
- Initial training of teachers;
- School reform and experiment: innovation strategy;
- Future of secondary education;
- Evaluation and selection.

2.4 Dissemination of information

Since 1970 there has been a great improvement in the dissemination of information about educational research, thanks to the setting up of the following:

- Le Centre suisse de coordination pour la recherche en matière d'éducation, Aarau;
- L'institut romand de recherches et de documentation pédagogiques, Neuchâtel;
- "Politique de la science": an information bulletin issued by Swiss bodies in charge of science policy;
- "Politique de l'éducation": the Yearbook (new version) of the Conference of Cantonal Directors of Education;
- The CDIP Pedagogical Committee.

The centres at Aarau and Neuchâtel have played a particularly important part in this respect. It was in fact they who prepared together for the Council of Europe the report on the state of educational research in Switzerland. As a result they have perfected a method of enquiry which will enable them to be kept permanently informed of the state of educational research, so that they will be able to give immediate and detailed answers to all enquiries in that area

2.5 Impact of research on educational development and innovation

No information.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

The Confederation at present acts as follows:

- Directly, through the relevant sections of the two federal polytechnics, of the Federal School of Gymnastics and Sport and through the Education Institute for Vocational Training;

- Indirectly, through the National Scientific Research Fund, the Swiss Science Council and the Science and Research Division of the Federal Department of the Interior.

In future, the role of the central authorities may also be based on the newly introduced Article 27, paragraph 6 of the Constitution, which was passed by the Swiss people and the cantons on 4 March 1973, and which reads as follows:

1. "The Confederation shall encourage scientific research;

2. It is empowered to set up or take over wholly or in part research establishments."

Indirect federal action may also take the form of financial aid to universities. A new bill which is being drafted to replace the Act of 1968 makes provision for federal grants towards general running costs, and not towards capital costs only. If this bill is passed, however, it will probably not come into force until 1 January 1975.

3.2 Intensified European co-operation

No information.

TURKEY

1. THE ROLE OF RESEARCH

1.1 Special characteristics of the Turkish education system which affect the role that educational research plays in it

The Turkish education system is centralised. This is especially so in elementary and secondary education. Curricula and regulations for each type of school are the same throughout the country and are fixed by the Ministry of Education. Appointments of teachers, school administrators, their transfers, promotions, etc., are made by the Ministry of Education. Textbooks also must be approved by the Ministry.

At higher education level, in addition to autonomous universities, there are higher institutions of learning as well as some newly established universities attached to the Ministry of Education.

Beginning in 1971 broad scale educational reform activities were launched in Turkey. Studies were made by working groups in the Ministry of Education on the following areas: re-organisation of the Ministry of Education; plans for shifting from five-year to eight-year primary education; restructuring of secondary education; adult education; reform in higher education and the universities; pre-school education; special education; and appointment and transfer procedures for teachers.

Research on the appointment and transfer of middle school and academic lycée administrators was completed in February 1972. Analysis of provincial and local administration of education is currently in progress. A new basic law for national education has been drafted by the Ministry of Education in 1972 and it is presently under consideration by parliament.

1.2 Co-operation between researchers and decision-makers

During preparation by the education section of the third five-year development plan, there was close co-operation between the State Planning Organisation and the Planning, Research and Co-ordination Office of the Ministry of Education. The five-year plans pass through parliament and are enacted as law. Student flows, costs per pupil, needed investments in education, achievement rates in schools, needs for teaching force etc., are the kinds of information provided by the Planning, Research and Co-ordination Office for the preparation of the five-year plans.

In addition, before proposals are made for changes in regulations, sometimes nationwide surveys are carried out. Sometimes the responsible researcher is asked by decision-makers for an explanation of the results of his research. However, educational research based upon strict research techniques is relatively new in Turkey. It is hoped that decision-makers in the near future will become increasingly more research-oriented.

1.3 Researchers' collaboration at the local level with teachers, administrators and parents

In general, educational research is organised by the central Ministry of Education. Researchers co-operate with administrators and teachers in the preparation of designs for research and pilot studies.

In each Provincial Directorate of Education there is a unit assigned to do research, planning and statistical data gathering. These also co-operate with administrators and teachers in schools. In curriculum development activities, e.g. in the Science Teaching Development project in experimental pilot schools, teachers and school administrators actively participate in the research.

1.4 Contribution of research to reform in the classroom

After the Memorandum of 12 March 1971, priority was given to educational reform activities. Working groups established in the Ministry of Education have emphasised research. In the field of adult education, research had led to the merger of three former general directorates (Manpower, Correspondence Teaching, and Adult Education) into a single General Directorate of Adult Education. An experimental guidance programme continues to expand in selected secondary schools and the Science Teaching Development project was extended to 189 pilot schools in the 1971-72 school year.

1.5 Main obstacles to a greater impact of research on the classroom

The main obstacle that prevents a greater impact of research on the classroom is the lack of well-trained and experienced researchers who deal directly with the specific problems of classroom management and teaching - learning processes. Realising this fact, the Ministry of Education has undertaken to train its own researchers.

1.6 Researchers and educational experiments

Before its nationwide application, a new elementary school curriculum had been tested in experimental schools between 1962-1968. Since 1971 the Science Teaching Development project has been applied in 100 academic lycées and 89 primary teacher training schools. There is co-operation between the teachers in pilot schools and researchers. The experimental guidance programme is another example of a pilot programme which requires the successful co-operation of teachers, researchers and a number of secondary education institutions.

1.7 Familiarisation of student and practising teachers with educational research

In the curricula of the higher teacher training schools and the pedagogical institutes, educational research has gained importance in recent years. At the present time the graduates of these institutions are better research-oriented than were previous ones. Teacher candidates also prepare research assignments. Some university faculties offer educational research courses for both undergraduate and graduate students.

1.8 Rationalisation and cost-saving through research

Studies in educational finance have been carried out and more are projected for the future. The Government of Turkey this year adopted the PPBS format for its budget and has made substantial progress in transforming its budgetary procedures in accordance with PPBS practice. The Ministry of Education was one of the leaders in the development of this new system. These studies and new procedures have resulted in better rationalisation of fund allocations and more efficient use of funds budgeted for education.

1.9 The role of educational research at post-secondary level

Universities, academies and higher schools are post-secondary educational institutions. Former private higher schools have now been made public. A draft of a new universities' law has been prepared and sent to parliament.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

Agencies which stimulate and promote educational research

The State Planning Organisation, the Scientific and Technical Research Council of Turkey,

the National Board of Education of the Ministry of Education, the Planning, Research and Co-ordination Office for the Ministry of Education, the Study and Programming Office of the Vocational and Technical Education of the Ministry of Education, and the universities are agencies which stimulate and promote educational research. In addition to the above-mentioned agencies, sometimes individual departments of the Ministry of Education may also carry out research on particular problems which they encounter.

The principal organisation at the national level for promoting educational research is the Planning, Research and Co-ordination Office of the Ministry of Education. This office has many facilities specifically devoted to research purposes including its own centre, which houses offices, a library, electronic data processing machines, and publication facilities. Several of its research specialists have been trained abroad. Educational research projects at the national level are organised by this office.

The Study and Programming Office for Vocational and Technical Education in the Ministry of Education periodically collects statistical data concerning the operation of vocational and technical education schools, makes studies of vocational and technical school programmes, and works to improve their curricula.

The Faculty of Education of Ankara University trains educational research specialists. Also at some university faculties, and at the Pedagogical Institutes, which are not attached to universities, educational research has been a subject of instruction. The universities also carry out planning and development activities for their own institutional development.

Planning and co-ordination of educational research

The planning and co-ordination of research projects for the Ministry of Education are among the chief responsibilities of the Planning, Research and Co-ordination Office.

In addition to projects initiated by the Ministry of Education, other educational research projects are planned and co-ordinated by the State Planning Organisation, by the Scientific and Technical Research Council of Turkey, and by universities.

Financing of educational research

Educational research projects of the Ministry of Education are financed by funds from the budget of the Ministry of Education.

The State Planning Organisation, the Scientific and Technical Research Council of Turkey, and the autonomous universities finance their own educational research projects.

2.2 Expenditure

Figures of total national expenditure on educational research are not available, but the total budget figures for research and study activities of the Ministry of Education are given below:

Year	Turkish Lira
1971	2,330,000
1972	3,953,000

2.3 Priorities

As Turkey is in the process of training research specialists, doctoral studies have priority among research projects in the Planning, Research and Co-ordination Office. Since 1968, the

office has been participating with Michigan State University in a USAID-financed project to develop the Office's planning and research operations. Nine doctoral research studies have been launched in the following areas:

a) Equality of educational opportunity in Turkey 1960-1970 (completed).

b) The role of secondary supervisors in the Turkish educational system (completed).

c) The role of primary level supervisors (in progress).

d) The role of the provincial directors of education (in progress).

e) Student flows into, through, and out of the "middle school" in Turkey. A pioneering pilot investigation of a sample of middle schools in one province, Usak (in progress).

f) A study of middle school student patterns of motivation, aspiration, and self-concept in schools in two different sorts of neighbourhood settings: (a) schools located in lower socio-economic neighbourhoods, and (b) schools in upper socio-economic neighbourhoods (in progress).

g) The role of the principal in primary teacher training schools (in progress).

h) A demonstration of an application of systems analysis to problems of education in Turkey (in progress).

i) Modes of testing and evaluating student progress (in progress).

In addition to the above doctoral research studies, educational research and development work is proceeding in the following areas:

- Science Teaching Development project: in the 1971-72 school year, the project was extended to 100 pilot lycées and 89 primary teacher training schools.

- Modern language textbooks in general secondary education: English, French and German textbooks are being developed.

- Guidance in schools: in the 1972-73 school year, guidance service centres were initiated in various secondary schools (in middle schools, academic lycées, normal schools, etc.) and increased to 65.

- Basic education schools: basic education consists of essential general education for children between 7 and 14 years of age. In the 1971-72 school year, basic education has been presented experimentally in 19 middle schools and district boarding schools in different provinces.

- Educational planning and management at the provincial level.

- Cost benefit analysis in education.

Priorities in educational research projects are established by the State Planning Organisation, by the Planning, Research and Co-ordination Office, and by the National Board of Education.

Among the special measures taken to promote research are the contract with USAID for the project entitled the National Educational Research and Planning Project (NERP, 1968-73) whose output includes the nine doctoral dissertations cited above; and the agreement between the Organisation for Economic Co-operation and Development and the Ministry of Education concerning the planning and management aspects of the educational system of Turkey.

In addition to the nine doctoral studies referred to above the NERP Project has helped the Planning, Research and Co-ordination Office to receive training in programme budgeting procedures and to develop plans for computerising the national data processing system in education.

2.4 Dissemination of information

Educational reports published by the Planning, Research and Co-ordination Office are distributed to the relevant general directorates and departments of the Ministry of Education and to other relevant agencies outside the Ministry of Education. Upon request they have been given free of charge to interested persons. This is true also for some of the other agencies. University research publications may be purchased.

Information about educational research publications can be found in Milli Kutuphane Bibliyografya Enstitusu Yayinlari, Turkiye Bibliyografyasi (National Library Bibliographical Institute publications, Turkish National Bibliography), published every three months.

Information about articles on educational research can be found in Milli Kutuphane Bibliyografya Enstitusu Yayinlari, Turkiye Makaleler Bibliyografyasi (Bibliography of articles in Turkish periodicals), published every three months.

The planning, Research and Co-ordination Office also publishes a series of information brochures which may be distributed to schools and is developing a centralised computerised information system for gathering operational data from the schools and for coding, storing, analysing, and reporting these data.

The publications referred to above are available to the public. Educational developments of national concern are reported in the press and by TV. There are a small number of professional journals in education which from time to time report educational research findings.

2.5 Impact of research on educational development and innovation

The chief strategy for implementing research findings lies in the co-ordination function of the Planning, Research and Co-ordination Office. The office is responsible on behalf of the Ministry of Education for co-ordination with the State Planning Organisation in the development of education sector plans and with the Ministry of Finance in the development of education sector budgets. The office brings research findings to bear on both these co-ordination functions. This office was first established in 1964 and has been carrying out its functions with increasing effectiveness (and increasing staff and facilities) since that date.

3. FUTURE DEVELOPMENTS

3.1 Trends and new measures

Further development of the computerised information system referred to above promises to provide decision-makers with much more timely, comprehensive, and fully analysed information.

3.2 Intensified European co-operation

No information.

UNITED KINGDOM

ENGLAND AND WALES

1. THE ROLE OF RESEARCH

No information.

2. GENERAL FRAMEWORK

2.1 Promotion, planning and financing of educational research

The decentralised nature of the education system in England and Wales is reflected in the arrangements for the sponsorship of educational research and the application of research results. Control over school curricula, for instance, is assigned in law to local education authorities, and delegated by them in large measure to schools. Thus the application of research and development to curriculum change depends heavily on local circumstances, and cannot be briefly summarised.

Financing

The government, as well as commissioning educational research itself, has delegated substantial responsibility to research councils and other bodies with specialist functions in the education research and development field.

A number of research and development councils, separately administered, but employing funds provided by the central government, have an interest in supporting educational research and their related fields. The foremost of these in this context is the Social Science Research Council. Its educational research board makes recommendations to this council concerning grants in support of specific projects and programmes.

The Schools Council for Curriculum and Examinations stimulates and commissions a wide range of research and development work within the area of the curriculum and examinations. It is financed equally by the central government (Department of Education and Science) and local education authorities.

The National Council for Educational Technology encourages and finances (from funds provided mainly by the Department of Education and Science) research and development projects in educational technology.

Although the central government itself provides funds for these varying bodies to enable them to finance educational research in their particular fields, it also administers a research programme of its own. This concentrates on projects directly related to policy considerations, or educational issues of general public concern. The Department also employs part-time research consultants, draws as necessary upon the advice of academic and professional specialists in particular fields, including economists, and has available the help of Her Majesty's Inspectors of Schools.

In addition to the bodies mainly supported by central government funds, some educational research in universities and other institutions in England and Wales is undertaken by means of funds made available by independent foundations, for example the Nuffield, Leverhulme, Gulbenkian, Wolfson and Rowntree Foundations.

Educational research undertaken in universities is supported either by funds allocated for specific projects by one of the above-mentioned bodies or from the general facilities and funds provided by the central government for the universities through the University Grants Committee.

The National Foundation for Educational Research is an independent institution carrying out research and related work on behalf of the education service. It receives substantial general support from local education authorities and other sources, including an annual grant from the central government. The Foundation also undertakes specific research projects, commissioned and financed by the Department of Education and Science, the Schools Council and other bodies.

Planning and Co-ordination

The majority of the organisations involved in supporting research publish reports which include lists of current and recently completed projects. From them and from other publications issued by research-supporting organisations, it is possible to obtain a picture of the work currently being undertaken. The central government has general arrangements for co-ordinating research sponsored by the government in social sciences, and for ensuring that departments are aware of research being undertaken by the Social Science Research Council. More specifically, co-ordination is achieved by representation of the Department of Education and Science on the Schools Council, the Educational Research Board of the Social Science Research Council, the National Foundation for Educational Research and other bodies.

2.2 Expenditure

No information.

2.3 Priorities

Decisions on expenditure of the funds available to the research councils, the Schools Council and the foundations are the responsibility of those bodies. Some organisations (e.g. the Schools Council and the National Council for Educational Technology) are, however, concerned with specific areas of research as indicated. The Department of Education and Science is itself concentrating its support on projects which are related to policy considerations or of general public concern within the field of education.

Within the past decade there has been a considerable growth in the number of bodies and agencies active in the field of educational research and in the proportion of funds devoted to these activities. Some of these bodies, e.g., the Schools Council for Curriculum Examinations, the National Council for Educational Technology, have specific remits which set the pattern of the research they support. It follows, therefore, that the trends will continue to include research into curriculum development and associated areas within the schools, and aspects of educational technology.

2.4 Dissemination of information

The National Foundation for Educational Research published registers of research covering a period up to 1969. From 1970 the main register of research in England and Wales - Scientific Research in British Universities and Colleges (published by HMSO) - has included in volume 3 a section on educational research. The Centre for Information on Language Teaching and Research, which is supported by the Department of Education and Science, the Scottish Education Department and the Ministry of Education for Northern Ireland, maintains a register for current research concerning all disciplines which may contribute to the improvement of language teaching. In addition the various research funding agencies provide lists of the projects they have themselves commissioned. Most of these lists, including a scientific register, are annual publications and the amount of information provided varies a good deal - some give full details of the projects being supported, others only titles or brief statements.

Details of research undertaken for higher degrees in universities can be obtained from the ASLIB (Association of Special Libraries and Information Bureaux) register of theses presented in British universities. This biennial publication has a section devoted to theses in the field of education, and cross-references to such theses in other social science sections.

The general availability of the lists referred to above and the publications provided by many of the research funding organisations provide a basis for interested individuals and organisations to keep up to date with the business of research. In addition to annual statements and reports on particular projects, a number of the funding agencies issue quarterly or monthly newsletters or bulletins, such as "Dialogue" published by the Schools Council and the "Newsletter" of the Social Science Research Council. There are numerous educational newspapers, magazines and journals in which details of current and recently completed research can be reported, and the Centre for Information on Language Teaching and Research publishes a quarterly journal of abstracts of papers and articles concerned with research on language teaching.

The newspapers, journals and magazines referred to are a valuable means for the dissemination of knowledge of research findings to teachers. The universities, local education authorities, teachers' organisations and HM Inspectors undertake extensive programmes of in-service training, including courses and conferences which consider or draw upon findings of educational research both specifically and broadly. There are some 400 Teachers' Centres set up by local education authorities and managed by groups of teachers, which provide opportunities for members of the profession to become familiar with the results of recent research and its application in the classroom. And the structure of the Schools Council, which includes representation by the teaching profession and associations means that the results of its research are readily known. Additionally, the members of HM Inspectorate have a standing responsibility to study and sift the evidence provided by educational research and to convey this to the schools and teachers as part of a two-way transmission of research findings and practical field experience. They do this partly through the in-service courses already referred to but mainly through their day-to-day contact with teachers, through which they are able to ensure that classroom innovation and experience become widely known.

2.5 Impact of research on educational development and innovation

While expenditure on educational research has risen considerably over the past 10 years, the application of research to specific education problems and needs is a more recent development; the Schools Council for Curriculum and Examinations, for example, was set up in 1964, and comparatively few of its major projects have so far reached the point of publication and dissemination. It is therefore too early to attempt a systematic assessment of the effectiveness of the contribution of educational research to policy-making and problem-solving, although the trend towards its use in this way can be observed.

It is clear that recently completed research into the trends of reading standards in England had a very significant impact. It led, for instance, to the establishment by the central government of a committee which is to consider:

- all aspects of teaching, the use of English (including reading, writing and speed);
- how present practice might be improved, and the role that initial and in-service training might play; and
- to what extent arrangements for maintaining the general level of attainment in these skills could be introduced or improved.

Action research undertaken in a number of "educational priority areas" over a period of three years has recently finished. The research explored, in selected areas of high social need, ways of helping schools to relate their work more effectively to the life of the community. The project focussed particularly on children under five years of age in primary schools. The first report has already stimulated much discussion, and some of the ideas put forward in it are reflected in the government's recent White Paper "Education: A Framework for Expansion".

3. FUTURE DEVELOPMENTS

No information.

UNITED KINGDOM

SCOTLAND

Pursuant to the Rothschild Report on research in the United Kingdom involving government departments, the Scottish Education Department reviewed its own position. The Scottish Council for Research in Education has been made a major agent in research work. The Department itself deals with a number of universities, and commissions research therein or else reacts to proposals stemming from the universities.

Teachers and education authorities, as well as members of education committees, are represented on the Scottish Council for Research in Education so that through this channel they are able to initiate research projects. In addition, teachers through their professional organisations may contact the Scottish Education Department direct for projects.

On the whole, research findings influence policy, but not immediately. There is a need for them to be assimilated into the system, and there is a need for sifting out of relevant findings before they can be related direct to policy.

Dissemination of information is undoubtedly an area which poses difficulties. Efforts are made to communicate with teachers through journals, newsletters and conferences.

The final area is that of innovation. Once research findings have indicated the way ahead, it is necessary to plan carefully to ensure that the schools can implement what has been provided. One of the important features here is to ensure that a whole school or similar institution is saturated with information, support and help, as opposed to spreading the information thinly over a large number of institutions.

GENERAL ISSUES OF EUROPEAN CO-OPERATION IN EDUCATIONAL RESEARCH AND DEVELOPMENT

by

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1.4 The development of society at large

Decisions and plans of the kind indicated above can influence schools and their activities even if they are not directly concerned with schools but with other social matters. Progressive urbanisation and increasing migration are two such factors. Others include technical development, structural change in industry, the automation of work processes, computer techniques, electronics, etc. The growth of communications, the increased supply of information, the activities of the mass media, etc., are as active a force as industrial and vocational changes in the transformation of education. Improved living standards and increased leisure are increasing educational opportunities at the same time as the unintentional environmental effects they produce may increase the need for education, and so on.

1.5 Long-term assessment: methods

1.5.1 Trend description

Obviously factors of the kind mentioned above are difficult to interpret, so that an assessment of the future is always open to discussion. This paper is therefore to be seen mainly as a description of development trends in schools in recent years. Any extrapolation into the future of events during the past few years is uncertain, however, even if, as in the present case, it is based on definite assumptions and on definite scheduled and planned changes in schools and in the community.

1.5.2 Inventory of problems

As can be seen below, a description of development trends leads directly to an inventory of presumptive problems. Although the changes expected to take place in school are designed to solve existing problems, this does not preclude their resulting in new demands and therefore in new problems. The identification of such presumptive problems must also be based on certain general evaluations, e.g., of relations between the individual and the community, questions on which no forecast or plan can be absolutely neutral. Thus assessments of the future which include trend descriptions and forecasts concerning problems are also bound to be dependent on the view of humanity, the image of society and the "Weltanschauung" from which they proceed.

1.5.3 Assessment of the current situation

Thus the trend assessment automatically leads to a problem assessment. Certain problems may then appear particularly important. The order of priority for measures to solve such problems should then form the basis of a school development plan. The various links in this chain of action are interlinked and cannot in practice be separated.

If a long-term assessment is to be realistic it must begin with reliable knowledge of the initial situation within the activities to which it refers. A description of the current situation is therefore also a necessary ingredient of a long-term assessment. A series of surveys of educational research to form the basis of a description of the current situation in different educational sectors has in fact begun under the auspices of European cultural co-operation.

2. THE GENERAL TASKS AND FUNCTIONS OF SCHOOL

2.1 The goals of school

We have already assumed (1.2) that the overall goals and values of school and education will remain essentially unaltered during the ten-year period. What then are these goals and values?

If we begin with the definitions included in the educational legislation and regulations of the European countries, we find goals which are quite similar in content even though the phraseology may vary. Briefly these goals may be said to fall into three categories.

The first category concerns the task of school to help the individual pupil achieve a favourable personal and individual development. In other words, the self-realisation of the individual is to be promoted. His inherent ability must be brought out regardless of external conditions and demands.

Another category of goals emphasises efficiency, professional skill and productivity, in short usefulness to the community.

A third category of goals refers to equality and fairness between pupils striving for the preceding goals. Equality here refers to "life chances" in a broad sense and is thus not restricted to success in education. These third category of goals can also be regarded as a means.

To these three goals can be added a series of secondary goals, e.g., the task of school to take care of pupils and keep them occupied during a certain period of time, to provide work for teachers and other personnel, etc.

2.2 Does school attain the goals specified?

Thus the overall goals of school define the framework for a long-term assessment. If school does not completely attain its goals, what can and should be done to increase goal attainment?

As was mentioned earlier (1.5.2) an assessment of the future is invariably dependent on certain valuations made by the assessor. Accordingly the answers to the above question regarding goal attainment in school will also depend on the values of the respondent. Here we shall only consider two principal questions on which value judgments can be expected from school and education or indeed can be demanded from school by others.

One of these questions of values concerns the external human environment and the human situation in general. Industrial development in our cultural sphere is now thought to be consuming natural resources to an extent which threatens man's existence. Left to itself this industrial development, together with the market forces allied to it, can make the goals of school as defined above more difficult, if not impossible, to attain. The responsibility of school for the individual as an individual and as a member of society must be emphasised and respected. The concepts of living standard and welfare can be expected to form the subject of a lively discussion during the coming ten years and they may be reassessed. This will affect the organisation, content and working methods of school, even if the overall objectives of school as defined above remain unaltered.

Another question of values concerns individual responsibility for and participation in an active cultural life. The present dissemination of an established culture can reduce the individual to a mere passive recipient of information. This in turn can lead to cultural alienation in the form of drop-out cultures, mysticism, drug addiction, etc. The role of school in raising social problems of this kind more directly than at present may lead to new tasks and working methods.

Attention has for a long time been drawn to the tendency of school to institutionalise itself and to live apart from the rest of society. The deschooling debate of recent years has been concerned among other things with provisions for the co-ordination of social and educational measures and for better provision in school and teaching for the needs and interests of different group

Similar values and attitudes have prompted the growing demand for adult education and recurrent education. A far-reading co-ordination of education and work also forms the basis of ideas put forward in various connections regarding "life-long education", "éducation permanente" and suchlike. Educational systems of this kind are fundamentally different from the present school system. They transform child and youth education as well as adult education and the relationships between education and working life. School becomes a more flexible and open system and its institutional peculiarities diminish.

3. DEVELOPMENT TRENDS

3.1 Disposition of the assessments

The development trends outlined below are based on a collective assessment in accordance with deliberations of the kind mentioned above, i.e.

(1) assumptions concerning developments during a coming period of time with regard to fundamental economic, social and educational conditions,

(2) the extrapolation of present development tendencies in school and education,

(3) observation of scheduled or planned changes of importance to school and education,

(4) assessments based on certain valuations concerning the responsibility of school in relation to society at large.

The assessments composing this section have been arranged in five groups. The three first of these (3.1) pre-compulsory education, (3.2) compulsory education and (3.3) post-compulsory education look at the educational system from the standpoint of the individual in a future system. It should be noted that this triad, covering the total span of education, diverges from the traditional sequence of pre-primary, primary, secondary, vocational, higher and adult education. It is not possible, however, to exclude these traditional concepts in a presentation of assessments. Some aspects of school and education, which are not easily handled under these three headings, are presented separately, namely (3.4) teacher education and (3.5) general and overall educational questions. It should be emphasised, however, that a division of this kind can only be used as long as it serves the purposes of the long-term assessment and of a development of school and education within the European cultural community on the basis of that assessment. Thus the assessments comprise both development tendencies and presumptive educational problems.

3.2 Pre-compulsory education

3.2.1 Universal pre-compulsory school

The introduction of universal pre-compulsory school is a topic of discussion everywhere in Europe. In all countries great hopes are being attached to the possible achievements of universal pre-compulsory school, which above all is seen as a means of helping children from homes offering less stimulating social and cultural environments to an optimum of social and individual development. In other words, pre-compulsory schools are expected to promote greater social equality. Educational development work should include an investigation of the real possibilities of an expanded pre-compulsory school in these respects. The problems confronting universal pre-compulsory school are related not least to finance and organisation. Complete universal pre-compulsory school facilities are at present only available in limited areas. The expansion now in progress provides an excellent opportunity for countries to support and assist one another.

A universal pre-compulsory school also requires closer co-ordination between pre-compulsory school and compulsory school. The strong emphasis placed on the social tasks of pre-compulsory school also implies co-ordination between pre-compulsory school and leisure centres, day care centres and similar social amenities.

3.2.2 The goals of pre-compulsory education

Two camps often crystallise out of debates on the goals of pre-compulsory education. One of these stresses the role of pre-compulsory school in caring for the children, especially when their parents are gainfully employed or need help with the supervision of their children for other reasons. The other camp stresses the educational tasks of pre-compulsory school, according to which children should acquire and practise certain skills. Sometimes the conflict of opinion between these goals is rendered more acute by recriminations alleging on the one hand that pre-compulsory school is no more than a child-minding institution and on the other hand that it is merely an anticipation of regular schooling. The next ten years will probably be characterised by experiments with different forms of pre-compulsory schooling. These experiments should be backed up with educational research and evaluation, which can be made common to several countries.

3.2.3 Development programme

Prior to the establishment of universal pre-compulsory school there should be every opportunity of drawing up an integral programme for its activities. The important task here will be to devise a synthesis of the dual goal which the pre-compulsory school is said to have, combining care and supervision with measures to stimulate social, emotional and intellectual development. Modern developmental psychology and new theories of concept formation and communication training will probably lead to a series of different pre-compulsory school programmes. The important task here will be to clarify the goals of the activities and to follow up and evaluate processes and resources.

3.2.4 Organisation

Organisation questions are often unclear, e.g., as regards who is to be administratively, financially, socially and educationally responsible for activities. Groups of different sizes and composition should be tested, as should different kinds of daily programmes. One important question concerns the personnel categories to take charge of activities. Pre-compulsory school teachers, nursing personnel and auxiliary personnel can be used. The training of these personnel groups is another matter in need of attention.

3.3 Compulsory education

3.3.1 The commencement of schooling

The question of children starting school at an earlier age has long been discussed, particularly in countries where compulsory schooling does not begin until the children are seven years old. Universal pre-compulsory school places this question in a new light. Regardless of whether children aged between three to seven years attend pre-compulsory school or compulsory school, the activities provided for them should be studied and scrutinised very closely. Comparative studies may have to be made of a flexible school starting age. Other forms of collaboration between pre-compulsory school and primary school may entail giving a more specifically educational content to pre-compulsory school activities or, at least in the case of certain children, allowing the freer working procedures of pre-compulsory school to be continued in compulsory school.

A more consistent co-ordination of pre-compulsory school and compulsory school programmes should form an important feature of joint European development work. The results of such a co-ordination can influence compulsory schooling as a whole, not merely the age at which children start school.

3.3.2 The duration of schooling

Within two decades compulsory schooling has been prolonged in the majority of European countries and now covers eight to ten years. Will this trend continue? Probably it will be broken. There are many signs of an inclination to stop at this eight to ten years, which does not prevent more and more pupils going on to post-compulsory education. On the contrary, one is perhaps entitled to expect that a greater variety of forms will need to be given to the termination of compulsory schooling than at present. Thus the question may arise of pupils who are considered to be in need of other occupations than schooling, be it on account of adjustment difficulties or for other reasons, being found regular employment through the good offices of the school, which however may still be responsible for them until the end of their period of compulsory schooling. Various combinations of study and work may have to be tested. It should also be noted that no small proportion of pupils may be prejudiced in their development and adjustment during their compulsory schooling if school work is given a predominantly intellectual slant. Problems of this kind extend beyond the confines of the individual country and school system and should be investigated more thoroughly.

3.3.3 Range of subjects

The basic skills of speech, reading, writing and arithmetic will continue to form the nucleus of the programme of the compulsory school. To these will now be added at least one foreign language.

Changes may occur, however, in the working and learning methods used for these skills, above all perhaps through a stricter adjustment of activities to the ability and speed of development of the individual pupil. The concepts of class and grade will probably lose some of their significance, at least where subjects predominantly concerned with skills are concerned. It is important here for each learning task to be related to a better diagnosed starting point. The training of skills thus requires co-ordination between the individual and his curriculum throughout school. This should in other words be more "vertical" than at present. Close attention should also be given to following up and evaluating different forms of individualization and of pupil preparation for the differentiation on which they have to decide when going on to education in post-compulsory schools.

Even now the content of scientific and social subjects is often grouped on an interdisciplinary basis. This trend will probably continue, but various forms of subject integration will have to be tried here, and integration must not be allowed to petrify into interdisciplinary structures which are as rigid as the traditional division into subjects. There is also a great deal to suggest that subjects connected with practical aesthetical and physical education will come to occupy a more prominent position than hitherto in compulsory education.

3.3.4 Free options

To the above range of general and compulsory subjects can be added a free sector in which pupils can choose the subjects or occupations of their preference. This sector too will probably acquire greater importance, particularly as compulsory schooling in the majority of countries now includes lower secondary schools with specialised subject teachers. Hitherto the problem in this secondary instruction has often been that the pupils' free choice within this sector has not significantly helped to eliminate the social bias of recruitment for further studies. Various measures should be considered and tested during the coming decade to decide the extent to which free options are compatible with even recruitment for further studies.

3.3.5 Special instruction

One far-reaching problem concerns the best way of offering pupils with physical, mental and intellectual handicaps the instruction and schooling best calculated to promote their individual and social development. Teaching and other measures on behalf of these pupils vary according to the nature and extent of their handicaps. There is an outward organisational structure of teaching which varies both within and between different countries. At an earlier stage of school history, when the main task was to discover these problems and focus attention on them, teaching often acquired the character of special instruction separated from school in general. Since then it has been found that special instruction both can and should be conducted within the regular school system, often within regular classes. How far one can and should go in this respect is a matter on which the international exchange of experience should be further reinforced. The time seems to have come for a thorough-going investigation not only of the goals, structure and forms of special instruction but also of relations in general between what is now regarded as ordinary instruction and special instruction.

In this way continuing through observation of matters concerning special instruction will constitute an indirect form of development work for education generally. It should be noted that these matters do not only concern compulsory schooling. To an increasing extent the same problems recur in upper secondary school, especially in educational systems where continued education is no long reserved for a select minority. These matters are also relevant to pre-compulsory schools and adult education, so that they are more general than specific in nature.

3.4 Post-compulsory education

3.4.1 The concept of post-compulsory education

The concept of post-compulsory education is given a very wide meaning in this context. It includes all kinds of regular education which follow the compulsory period of school attendance, i.e., not only upper secondary school (including academic, vocational and technical education) but also education at universities, colleges and other institutions of higher education. It also includes the nowadays rapidly expanding area of so-called adult education. This does not constitute just one type of education or stage of training. In terms of content it can include courses of compulsory school level, upper secondary level and post-secondary level. In terms of external structure it can be given as courses in schools, universities and other institutes for education and training. It can also be attained through study circles or wholly individual studies. It can aim at retraining and refreshment as well as further education. One common trait for all kinds

adult education, is that not only are the students grown-up people, but they also come to studies after a more or less long period of work experience. This trait, however, will in future probably become common to all kinds of post-compulsory education. The borderline between different kinds of school and different kinds of education will probably become less distinct than now. As a consequence universities and corresponding institutions for higher education, will work side by side with institutions whose status has traditionally been lower. University courses will be combined with vocational or other non-academic courses into different programmes corresponding to the varying needs of individual students and of society. Education programmes of this type will probably be directed more than hitherto towards jobs and activities beyond school.

The role of the universities (and corresponding institutions) in combining higher education and research in one unit will probably be preserved; and the training of researchers will continue to be a bridge between education and research. These functions of the universities will not be discussed further here.

3.4.2 The structure of post-compulsory education

The need for a general restructuring of the educational system, as in the form of recurrent education, will probably lead to sweeping changes in the school system at post-compulsory level. The efforts, referred to above, to bring about a more integral school structure may very soon be supplemented or succeeded by efforts to break up a fixed structure of lines of study into smaller courses which are interchangeable and can be built up into various combinations. Rationalisation gains can be effected by integrating one and the same course (e.g. in foreign languages) into various kinds of educational combinations. It should also be possible for certain courses to be studied at an individual's pace, beginning and concluding in such a way as to simplify co-ordination with other courses or with gainful employment.

Development trends of this kind might make traditional faculties and schools obsolete and make way for experimental activities of different kinds in different countries. Such changes will make secondary education, higher education and so-called adult education more interrelated and interdependent than now. And post-compulsory education as a whole will become closer related to labour and leisure activities.

At present it is hard to say how far one can go in this fragmentation of a line-based system of studies A system of this kind is already partially operative in labour market education. The coming ten-year period will probably see attempts of various kinds to put these ideas into practice. A more regular international exchange of experience is called for here.

3.4.3 The comprehensive school

Many reforms of compulsory schooling in recent years have been aimed among other things at bringing what were formerly separate schools and courses of studies at primary and lower secondary school level together into one and the same organisation. The realisation of the same comprehensive principle is now being extended to upper secondary school, i.e. to gymnasium and lycées, technical schools and vocational schools of various kinds. The comprehensive principle also forms a basis for structural changes in universities, colleges and other kinds of higher education. The circumstances governing the co-ordination of schools at this level are very different in different European countries. Solutions may vary, but they are all motivated by a common effort to bring academic and practical education closer together and to reduce or eliminate the difference of status which has hitherto existed between different types of schools and forms of education.

The establishment of a more integrated organisation of secondary schools can - at least during a transitional period - result in a reduction in the number of parallel courses of studies. Education will acquire a broader common basis, becoming more sector-oriented and less specialised. There is a great deal of subject congestion at this level, due often to the students' desire to have access to as many courses of further studies as possible when they leave school.

3.4.4 Courses of studies, choice of line, choice of subjects

Efforts to bring about a more integrated organisation of post-compulsory education create new problems, however. There are certain demands on a school organisation of this kind which are difficult to reconcile. The comprehensive idea can lead to large and administratively unwieldy school units. The desire to be able to combine academic and practical subjects or to be able to change subject and line without difficulty can only be catered for insofar as these subjects and lines are gathered together in one place. This desire comes into conflict with the demand for an increased diffusion of post-compulsory education to thinly populated areas so that everybody can have access to these amenities without having to undertake tiresome journeys or live away from home. An international exchange of experience can be of value not least with regard to the practical solution of goal conflicts of this kind.

3.4.5 Vocational education

The boundary in secondary education of today between general and vocational education will probably grow less distinct. Elements of preparatory vocational education may be called for in traditional upper secondary education as well. If the goal of recurrent education is to be realised, everybody should be able to proceed to gainful employment, at whatever level they conclude their studies.

At the same time demands for professional qualifications at the post-compulsory level will remain or may even increase. The question of how a broadly based sector-oriented vocational education (and general secondary education) can be linked up with a system of special courses giving professional qualifications is another field in which it should be possible for European efforts to be co-ordinated to a greater extent than has hitherto been the case.

Parallel to the realisation of the desire for social equality, there will probably be an increasing drift from the more general and theoretical courses of studies within certain spheres and certain sectors of education to courses for technical and vocational training.

3.4.6 Pedagogical questions

Research and development in the field of post-compulsory education is still in its infancy, especially learning and teaching in higher education and adult education. This means that there is every possibility of co-operation being established between the European countries. Teacher education and in-service training of teachers have so far been very little focused on the teaching of adults. Very little has been made to find out the efficiency and applicability of different methods of teaching and examining at universities and colleges in labour market training and in popular education. The same applies to the development and production of teaching materials, audiovisual aids, programmed instruction etc. Curricula and syllabi for post-compulsory education will probably differ from their counterparts within compulsory education. Among other things they should be "modular" and interchangeable in such a way as to facilitate a link-up between studies and work or studies and leisure. All measures of this kind for the promotion of post-compulsory

education urgently needed. This in turn may necessitate a certain steering of development work. The forms and content of such development work can be expected to become the subject of intensified joint efforts during the next few years.

3.4.7 Access to post-compulsory education

One of the most powerful control mechanisms in secondary education is that formed by the rules governing admission to higher studies. There is everything to suggest that in future these rules will no longer be concerned solely or even primarily with academic secondary education. Vocational education or other forms of education parallel to academic secondary schooling can be expected to serve as a general qualification for the pursuit of so-called higher studies. Special qualification requirements may then be added to this general qualification according to the nature of the studies to be undertaken These requirements may also include work experience. The system applied hitherto whereby completion of secondary school studies (studentexamen, Abitur, baccalauréat, matriculation) generally entitles the student to admission to higher studies regardless of line and subjects is gradually being replaced by a new system of rules. The design of this system is of the utmost importance for international understanding and co-operation. Another common problem is that different courses of study in secondary school exercise different degrees of attraction, due among other things to the different opportunities for continued studies which they afford. Co-operation should be aimed at making different courses of studies more accessible and more comparable between different countries.

A problem, shared by most countries, is the social bias concerning recruitment to post-compulsory education. Not only higher academic studies but also so-called adult education displays this bias. Experience has shown that the mere establishment of an educational system which is open to all those who are interested does not lead to the social equalisation that was hoped for. One important task during the coming ten-year period will therefore be to devise and test new forms of recruitment featuring more active recruitment and direct contacts at personal level. This is true not least of immigrant education and labour market education.

Post-compulsory education is also related to a long series of questions concerning gainful employment, the financing of studies, social security etc. The solution of these matters, possibly through a system of recurrent education, will probably take longer than the ten-year period here under consideration. Also it seems doubtful whether such a system can be given a uniform structure. It is nonetheless important, not least for the sake of the students themselves at this level, for a certain amount of streamlining to be effected so as to achieve greater simplicity and order in the present rather complicated grants systems.

3.4.8 "Open University"

One group of matters wherein university and college education merges with adult education in general concerns the series of uniform changes of regulations which have made it possible for persons who previously were not qualified to study to gain admission to so-called higher education. Higher studies by correspondence and within the field of popular education, via radio and television or through special state further training courses etc. have become common in several countries. To these facilities must be added rules granting a general qualification for higher studies by virtue of education other than that provided by the regular secondary school, and rules concerning the credit to be given for previous vocational experience to students commencing higher education. Behind the

measures of this kind taken in various countries is a common desire for the greater democratisation of educational opportunities. Here too it is important for an international exchange of experience to be established.

3.4.9 Internationalisation

Recruitment for post-compulsory education can be locally or regionally based, but to a greater extent than nowadays it can also be conducted on a national and international basis. Far greater mobility is probably to be expected among students in future, especially at university and college level. Education will probably acquire such an international character insofar as obstacles are not presented by a deficient knowledge of languages. The mobility of students should then lead among other things to a greater exchange of students within and between countries. Exchange of this kind can also lead to a certain division of labour between countries with regard to the arrangement of specialist education facilities.

3.5 Teacher education

3.5.1 Categories of teacher

The trend within the majority of European countries towards the co-ordination of mutually independent schools within integral systems renders the traditional distinction between class teachers and subject teachers less noticeable. The same applies to the division of subject teachers into academic, technical and vocational categories and to the separate consideration of teachers concerned with what are respectively termed "normal" teaching and special instruction. The division of teachers into categories varies from one country to another, and differences in this respect are an impediment to the establishment of a joint labour market for teachers. The first step toward the promotion of co-operation and understanding could be to plot the spheres of competence of existing teacher categories, the criteria on which those categories are based and the importance of such criteria for the role of the teacher in a new and more international school structure.

3.5.2 The co-ordination of subject education and training to teach

If the division of teachers into strict categories has become an anachronism, the same applies to teacher education characterised by a rigid separation between different teacher training establishments. By tradition the training of class teachers and subject teachers has taken place not only within separate organisational structures but also within clearly separated intellectual and social contexts. This is connected among other things with the fact that subject studies and practical teacher training are organised on different lines for class teachers and subject teachers respectively. In the case of teachers of academic subjects there is little co-ordination between theory and practice (insofar as teacher training includes any practice at all), while there is a high degree of co-ordination in this respect where class teachers are concerned

Regardless of the form of co-ordination adopted, it must not lead to an artificial division of teachers into rigid categories. The training of class teachers has long been considered superior to the training of subject teachers, by reason of its far-reaching integration of theory and practice. Before putting this last into general application in all teacher training, one should remember another co-ordination requirement, namely that teachers should be educated together with other vocational groups (see 2.2 supra). This can mean that, in the case of both class teachers and subject teachers, practical training should be deferred until after the completion of subject studies and that co-ordination should then aim at achieving meaningful links and relations.

One problem which has long been felt, but which has not resulted in any action being taken until during the past few years, concerns the training of university and college teachers. Further training courses and training programmes are now being provided on a limited scale. The development, organisation and utilisation of these facilities should constitute a sphere in which the European countries can advance further by joint measures than by separate action.

3.5.3 A new teacher's role

The fact that the division of teachers into categories is an anachronism does not imply that one should concentrate on a single type of teacher education. The teacher's role will doubtless be specialised, although on different terms from the traditional categories. A new teacher's role will among other things be based on the need for team teaching.

The planning of teaching, the utilisation of premises and materials, the sequencing of the parts of a course, the co-ordination of those parts and of other subjects studied by the pupils, the choice of forms of examination and accounting will tend more and more to be made by teams of teachers. A team of this kind will often include teachers' assistants and technicians. The teachers will be directly responsible for particular teaching items and will be jointly in charge of the total work done by the pupils. Correctly proportioned, the teacher team has proved to combine the advantages of the class teacher system as regards collective pupil welfare with the advantages of authoritative subject knowledge offered by the subject teacher system.

The new professionalism of teachers incorporates many other elements. The general principle is that the teacher must as far as possible be relieved from routine tasks and concentrate more on tasks for which he cannot be replaced by an untrained person. The teacher's role must be analysed in detail. Among other things, one should observe the extent to which the teacher enjoys more of an opportunity to take care of his pupils' welfare in the broad sense owing to his having been relieved of routine tasks. Pupil welfare of this kind is a central task in the new teacher's role. New conditions of service will gradually be established. Not only lessons (insofar as the teacher's main contribution is to give lessons) but preparatory and follow-up work also will tend to be centred more on the school, where materials and personnel will be available.

A significant feature of the school debate during recent years is the wish to de-institutionalize school and education. This might imply, that others besides teachers teach in the school, but also that teachers do other things besides teaching. The teacher's social role will change, not only inside but also outside the school.

The shortage of teachers, which has long been a handicap, appears to be diminishing or disappearing in many countries. But the quantitative supply of teachers does not always correspond to the qualitative supply. Efforts will therefore probably be made during the coming decade to achieve adaptation to and education for a new teacher's role in which the pupil means more than the subject and in which pride of place is given to measures taken by the teacher to promote social learning and a favourable social climate. The choice of subject matter and working methods must not be dictated solely by the aim of providing efficient learning but must also be designed to promote creativity, critical thinking, emotional maturity and self-reliance.

Teacher education gauged for new educational needs must be kept in close contact with educational research and development if it is not to atrophy into rigid patterns of teaching. There are various opinions as to how this should be done.

The internationalisation of teacher education is a self-evident and necessary complement to the internationalisation of the school system.

3.6 General and overall educational questions

3.6.1 School-community relations

As was stated earlier, with reference to recurrent education, the content and working methods of school must pay greater regard to conditions in society at large. Co-operation between school and industry, school and homes, school and popular associations, etc., can have new and unforeseeable consequences. Among other things, some of the tasks at present automatically regarded as school functions may be taken over by other institutions.

The co-ordination of school and society can go considerably further than the confines of theoretical and practical vocational guidance. It may come to influence studies and education generally so as to broaden the general preparedness and awareness of the individual, encourage further studies, help the individual to become the master of his own fate instead of merely being the victim of events and situations. Reference has already been made to the alternation of studies and work. Another consequence may be that other persons than teachers will take charge of the pupils during their instruction. The co-ordination of school and society may also include a more frequent inter-action of parents and teachers. So-called parent courses already exist, where questions of schooling and education play an important part.

Research and development work is needed to test different courses of action. This work may also cover school buildings and matters related thereto, organisational measures such as the utilisation of school premises for other purposes besides teaching, the development of so-called open schools and flexible schools, experiments with new pupil groupings and so forth.

3.6.2 School management

Matters concerning the management of the school system and of individual schools will probably be topical during the coming ten-year period. Changes may be effected in the spheres of responsibility and activity of central and local authorities. One current question concerns the division of head teachers' time between administrative and educational matters. Role analyses are urgently needed to obtain improvements in this respect. An international exchange of experience will have a great deal to offer.

The education of head teachers and school administrators is a sector in which the possibility of international co-operation should be tested. The same applies to various experiments with collective school management or with new management forms of other kinds.

3.6.3 Student participation

Team work in school can be expected to include student participation even in the context of what has traditionally been regarded as the teacher's own work. The planning of studies and teaching, the choice of course content and teaching materials, forms of testing and evaluation, all these are naturally topics of interest to the students and pupils as well. They should participate in the discussion of such matters. Where other matters are concerned, e.g. routines external to work, the students and pupils can assume full or partial responsibility. A division of labour and exchange of experience should be possible between the European countries with regard to experimental activities and development work aimed at more active student and pupil participation.

3.6.4 Teaching materials and school equipment

Matters common to several school levels include the development of teaching materials, media and method research and documentation, and information concerning teaching materials. This is valid also for equipment and fittings in school buildings and schoolrooms.

Another important educational and organisational question concerns the provision of teaching materials and equipment locally. Central and local registers for the selection of teaching materials and school equipment are also urgently needed. The testing and evaluation of different materials, equipment, technical apparatus, textbooks and manuals, is another field in which joint efforts can play an important part, possibly with a view to supplying a simplified form of informative labelling. The market criteria which have hitherto been so decisive in determining the supply of such materials should be subordinated to educational and political requirements. This opens up a field for large-scale collaboration, e.g. on the supply of teaching materials for vocational education and special instruction.

3.6.5 New subjects and working methods

The attempts which have now begun to open up new paths by doing away with traditional planning dimensions such as the class, the subject and the lesson, will probably continue. The traditionally-dimensioned school can be experimentally replaced by a system of different courses of studies at different schools within one and the same region. The class can be replaced by a flexible pupil grouping whose composition varies according to the nature of the work in hand. The lesson can be replaced by another, freer disposition of time. The classical textbook can be replaced in certain subjects by study kits in which textbook, pupil booklet, teachers' guide, film strip, etc. make up an integrally planned resource.

A more liberal utilisation of time, premises and personnel will probably require a less rigid system of State grants than is now applied in the majority of countries. The experiments with framework plans and programme budgeting which have begun in certain countries can be expected to result in a variable range of development measures in which experience gained from the experiments of individual countries should be of interest to all others.

Subjects and course content are also in need of continual renewal. Particular attention should perhaps be drawn at the present juncture to the better use which could be made by schools of the information and training received by pupils outside the

activities scheduled in school. Schools may be able to reduce their present high standards of comprehensive encyclopaedic education and concentrate more on detailed vocational and educational studies in limited courses. Subject matter may also need to centre more on topical social issues such as environment protection, road traffic, the sex roles, economic consumption, information, criminality, mental welfare, etc.

Other general educational questions concern evaluation, achievement tests and the award of credits. The liveliness with which these matters are debated is often due to the exposure of conflicting values concerning the relationship between the individual and the community, which in turn reveals that different interpretations have been placed on the goals and tasks of school (vid. supra, 2.1). There has long been a demand in the field of international school co-operation for a more uniform system of evaluation or credit or at least for national systems which would make international comparisons feasible.

3.6.6 Miscellaneous questions

A question, which is far from new but which seems to be common for all Europe, is sex discrimination. Although this is a problem for the society as a whole, the educational system is of great importance. Exchange of information about problems, practices, experimental activities and experiences would be helpful for each single country. Far more recent but of increasing importance is the education of immigrants and of migrant workers, which requires not only special measures in education but also co-operation between school, social agencies and employers within a local area as well as between local and national areas. Another question of growing impact is how the principle of free choice can and will be realized in education. Replacing selection with orientation, information and guidance implies many practical and ethical questions, where our knowledge could be deepend through international co-operation. Yet another field where different countries have had different experiences concerns student grouping. The use of different grouping criteria, such as age, sex, intelligence and subject knowledge, leads to different practices in promotion, examination, grade-repeating and special education, where cross-national information might improve education.

The above enumeration of development trends and problems is not exhaustive. One important question of a general nature during the next ten years will concern the utilisation of educational research and development work when deciding matters of educational policy at international, national and local level. The aim here should be for mechanisms for evaluation and continual self-renewal to be built into the school system.

4. PLANNING FOR EDUCATIONAL DEVELOPMENT

4.1 Strategic planning

The questions outlined in section 3 above do not provide a comprehensive picture of development trends in school and education, merely a collection of examples of a varied complex of problems gathered on the basis of certain assumptions, trends, etc. (vid. 3.1). Nor are all these problems of such a kind that they ought primarily to be made the subject of international co-operation. The production of a strategic plan for desirable school development cannot be regarded as a task for international bodies. A plan of this kind - like a plan for

for European cultural policy as a whole - must pay closer attention to social and economic questions as well. Educational research and development can provide a basis for decisions of policy but it can never take charge of educational policy as such. Strategic planning will therefore be the task of the individual country.

4.2 Priorities

As was noted by way of introduction, the European countries should nonetheless achieve better and swifter results on a joint basis than by separate efforts. The first requirement is a series of surveys to provide a better starting point for subsequent action.

A second question concerning priorities is which of the above five contiguous problem sectors (3.2 - 3.6) should be considered most in need of attention in order for educational research and development work to lead to the attainment of the overall goals of school and education as enumerated above (2.1). Sector priorities of this kind are extremely hard to decide.

Adult education and pre-compulsory education are the two sectors to which particular attention will probably be devoted during the coming ten-year period. They are also particularly interesting because their structure may do so much to determine other parts of the education system as well. Vocational education is another priority sector, above all as regards its relation to subjects and courses of study within the overall framework of post-compulsory education.

Another question to which priority should be given concerns the study progress of poorly motivated pupils generally. As has already been observed, pupils of this kind are to be found at various school levels.

Priority should also be given to the evaluation of different forms of organisation of education so as to provide a basis for the continual renewal of education in keeping with current requirements.

The fact that the above-mentioned questions are generally regarded as of urgent importance within the sphere of European co-operation does not necessarily imply, however, that research and development tasks are always to be ranged in this kind of order of priority. European co-operation might focus on questions of methodology as well as questions of content in educational research and development. It might also be worthwhile to concentrate on in depth analyses of restricted problems as well as survey analysis. Probably it is often appropriate for co-operation to begin in sectors where there is considerable unanimity between countries and controversial issues can be avoided. This is one reason why, in cases where co-operation has been established, the work of harmonisation has begun with internal educational matters, e.g. the teaching of mathematics and foreign languages. Once forms of co-operation have been developed and established it may gradually become possible to tackle more difficult questions of principle and policy. The international exchange of teachers and pupils is one means of increasing international co-operation and understanding. The practical conditions for such exchanges should be investigated more closely.

4.3 Activity planning

The final stage of a long-term plan usually takes the form of a plan of activities, i.e. the indication of specific projects and tasks. Instead of this planning of activities we shall here confine ourselves to a brief intimation of the criteria according to which activities should be chosen.

(1) They should promote the overall goals of school common to all the European countries (supra, 2.1).

(2) They should promote international understanding and collaboration according to the guidelines adopted by the CCC.

(3) They should be of direct interest to more than one of the countries of the cultural community, preferably to all of them.

(4) They should be such that co-operation between the countries is justifiable in terms of both efficiency and profitability.

(5) They should help to remove obstacles to free migration and communication between countries.

(6) They should contribute towards a greater knowledge and better ideas concerning school and its function.

(7) They should contribute towards the solution of problems encountered in education.

(8) They should promote the development of methods and means in education.

The procedure to be adopted when reviewing different projects proposed will depend on a host of circumstances, e.g. one's assessment of the ability of individual countries, institutions and researchers to carry out educational research and development.

Finally it should be noted that a long-term assessment of educational research and development must be continually reviewed and revised in the light of progressively acquired experience, regardless of whether this plan is fulfilled by means of continued strategic planning or whether, as in the present case, it is confined to a long-term assessment.

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